Note remarks

: MB 5,7 n 26 Test sheet Edition : 16.01.91

Replaces

Test oil : ISO-4113

: 0 400 876 145 Combination no.

Injection pump

Pump designation : PES6A90D410RS2293 EP type number : 0 410 896 031

Governor

Governor design. : RSV350...1425A2B1028

: 0 420 234 248 Governer no.

Customer spec. information

: MERCEDES-BENZ Customer

: OM 353 Engine

: 92.0 1st version kW Rated speed : 2850

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.15...2.25 : (2.10...2.30)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 14001st speed

Rack travel in mm : 9.50...9.60

Del.quantity cm3/: 6.2...6.3

100 s: (6.0...6.5)

cm3 : 0.3Spread

100 s: (0.4)

2nd speed rpm : 350.0 Rack travel in mm : 7.4...7.6 Del.quantity cm3/: 0.9...1.5

100 s: (0.7...1.7)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 62.0...63.0 1000 : (60.0...65.0)

: 3.00 cm3

Spread 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Testing:

1st rack travel in: 9.50 Speed rpm : 1455...1465 4th rack travel in: 1500

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.0 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350 Rack travel in mm : 7.40...7.60 Rack travel in mm : 2.00 Speed rpm : 570...630 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1400
Rack travel in m: 9.50...9.60
2nd speed rpm : 450
Rack travel in m: 9.90...10.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1455...1465 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 15.10...15.50 LOW IDLE Speed rpm : 350 Rack travel in mm : 7.40...7.60 Del.quantity cm3/: 9.0...15.0 1000 s: (7.0...17.0) cm3 : 2.00 Spread 1000 s: (4.00) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS
Note remarks

Test sheet : MB 5,7 o 3
Edition : 16.01.91
Replaces : 11.80
Test oil : ISO-4113

Combination no. : 0 400 876 167

Injection pump

Pump designation : PES6A90D410RS2293 EP type number : 0 410 896 031

Governor

Governor design. : RSV575...1250A8B614L

Governer no. : 0 420 232 171

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM352

1st version kW : 91.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1230

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 6.2...6.3

100 s: (6.0...6.5)

Spread cm3: 0.3

100 s: (0.4)

2nd speed rpm: 575.0
Rack travel in mm: 5.5...5.7
Del quantity cm3/: 0.9 1.5

Del.quantity cm3/: 0.9...1.5 100 s: (0.7...1.7)

Spread cm3 : 0.2 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1230

Del.quantity : 62.5...63.5 1000 : (60.5...65.5)

Spread cm3 : 3.00 1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 9.80

Speed rpm : 1290...1300

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

Speed rpm : 575 Rack travel in mm : 5.1

Testing:

Speed rpm: 100
Minimum rack trave: 19.50
Speed rpm: 575
Rack travel in mm: 5.00...5.20
Rack travel in mm: 2.00

rpm : 530...590 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1230

Rack travel in m: 9.80...9.90

2nd speed rpm : 500

Rack travel in m: 10.30...10.40

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 15.10...15.50

LOW IDLE

Speed rpm : 575
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 9.0...15.0
1000 s: (7.0...17.0)
Spread cm3 : 2.00
1000 s: (/.00)

Remarks:

Note remarks

: KHD 6,1 e 8 : 26.04.91 Test sheet Edition : 8.6.90 Replaces

Test oil : ISO-4113

Combination no. : 0 400 876 275

Injection pump

Pump designation : PES6A95D41ORS2471 EP type number : 0 410 896 952

Governor

: RSV325...1150A8C674-Governor design.

3L

: 0 420 232 543 Governer no.

Customer-spec. information Customer

: BF6L913C Engine

: 132.0 1st version kW Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 325.0 Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 700

Del.quantity : 108.0...110.0 1000 : (106.0...112.0)

cm3: 3.00 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

A05

3rd rack travel in: 4.00 Speed rpm : 1285...1315 4th rack travel in: 1400

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 67...75

Setting point w/out bumper spring

rom : 325 Rack travel in mm : 6.8

Testina:

Speed rpm Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 7.20...7.40

Rack travel in mm: 2.00 rpm : 585...645 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150
Rack travel in m: 11.80...11.90
2nd speed rpm : 500
Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm Pressure hPa : 700

Rack travel mm : 11.80...11.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.80...10.00 2nd pressure hPa : 340 Rack travel in m: 11.30...11.40

3rd pressure hPa : 160

Rack travel in m: 10.40...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 rpm : 850

Del.quantity cm3/: 103.5...106.5 1000 s: (101.0...109.0)

Spread cm3 :

1000 s: (7.00)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 15.50...15.90

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

The stop position of the control rod must be easily reached with the stop Lever

APPLICATION

Installation 2300

Note remarks

Test sheet

: VAL 6,6 a 2 : 03.05.91

Edition Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 876 321AN

Injection pump

Pump designation : PES6A95D32ORS2684

EP type number

: 0 410 896 917

Governor

Governor design.

: RSV325...1050A0c2178

-2R

Governer no.

: 0 420 233 178

Customer

Customer-spec. information : VALMET

Engine

: 6110

1st version kW

: 79.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

A07

: 2.50...2.60

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

& maximum rack tra: 21.00

Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed

rpm: 1080

Rack travel in mm : 12.20...12.30

Del.guantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 325.0

2nd speed Rack travel in mm : 4.7...4.9

Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) Spread cm3: 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed Del.quantity

Spread

rpm : 1080

1000

119.0...121.0 : (117.0...123.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 77...85

Testing: 1st rack travel in: 11.20 Speed rpm : 1120...1130 3rd rack travel in: 4.00 Speed rpm : 1160...1185 4th rack travel in: 1310 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 7...15 Setting point w/out bumper spring Speed : 325 **COU** Rack travel in mm: 4.2 Speed : 325 rpm Rack travel in mm : 4.70...4.90 Rack travel in mm: 2.00 : 310...370 Speed rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050
Rack travel in m: 12.20...12.30
2nd speed rpm : 500 Rack travel in m: 12.20...12.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/: 114.0...117.0 1000 s: (111.5...119.5) Speed rpm : 800 Del.quantity cm3/: 120.0...123.0 1000 s: (117.5...125.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1120...1130 Speed STARTING FUEL DELIVERY Speed rpm : 100 Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 325 Speed Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 13.0...17.0

1000 s: (10.5...19.5)

Tractor (tractor engines)

Note remarks

Test sheet : FIA 5,9 c : 24.04.91 Edition : 21.5.90 Replaces Test oil : ISO-4113

Combination no. : 0 400 876 349

Injection pump

Pump designation : PES6A90D410RS2757 EP type number : 0 410 896 086

Governor

Governor design. : RSV425...1000A1c2233

: 0 420 232 496 Governer no.

Customer-spec, information Customer : IVECO-FIAT

Engine : 8065.25.080

TEST CENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 : (2.20...2.40) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-Firing order 2Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm: 11.80...11.90

Del.guantity cm3/: 9.0...9.1

100 s: (8.8...9.3)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 475.0 Rack travel in mm : 7.1...7.3 Del.quantity cm3/ : 1.0...1.6

100 s: (0.8...1.8)

cm3 : 0.2 Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting \bar{x} : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 800

: 90.0...91.0 Del.quantity

1000 : (88.0...93.0)

: 3.00 Spread cm3

1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 101...110

Testing:

1st rack travel in: 10.80

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1090...1120 Speed

3rd rack travel in: 4.00

Speed rpm : 1140...1170 4th rack travel in: 1240 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 77...85 Setting point w/out bumper spring

rpm : 475 Rack travel in mm: 6.7

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 475
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00

rpm : 610...670

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000 Rack travel in m: 11.80...11.90 2nd speed rpm : 500

Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed rom : 500 hPa : 800 Pressure

: 11.80...11.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.30...11.50

2nd pressure hPa : 780

Rack travel in m: 11.70...11.80

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80 peed rpm : 1040...1050

Speed

STARTING FUEL DELIVERY

A10

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : DAF 6,2 q 4 : 19.10.90 Edition

Replaces

Test oil : ISC-4113

: 0 400 876 369 Combination no.

Injection pump

Pump designation : PES6A95D32DRS2693Z

EP type number : 0 410 896 913

Governor

: RSV300....1300A0c2248 Governor design.

: 0 420 233 270 Governer no.

Customer-spec. information Customer : DAF

Engine : DNT 620

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15) Rack travel in mm : 7.50...10.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50

& maximum rack tra: 21.00 Difference °CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.8...8.9

100 s: (8.6...9.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.3...6.5 Del.quantity cm3/: 0.7...1.1

108 s: (0.4...1.3)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

: 88.5...89.5 Del.quantity 1000 : (86.5...91.5)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testina: 1st rack travel in: 10.80 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1410...1440 Speed 3rd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1595 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 75...83 Setting point w/out bumper spring riom. Rack travel in mm: 5.9 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 300 Rack travel in mm : 6.30...6.50 Rack travel in mm: 2.00 : 580...640 Speed rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1290 Rack travel in m: 11.70...11.90 2nd speed rpm : 500 Rack travel in m: 12.40...12.50 4th speed rpm : 1020 Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting pm : 600 hPa : 700 Speed LDW Pressure : 12.10...12.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : -Rack travel in m: 11.00...11.20 2nd pressure hPa : 290
Rack travel in m: 11.90...12.00
3rd pressure hPa : 250 Rack travel in m: 11.50...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700

: 1290

rpm

Del.quantity cm3/: 88.0...90.0 1000 s: (85.5...92.5) Aneroid pressure h: -Speed rpm: 600 Del.quantity cm3/: 65.5...66.5 1000 s: (63.5...68.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80 Speed rpm : 1340...1350

LOW IDLE

:

Remarks:

A12

Speed

Note remarks

Test sheet : VAL 6,6 b
Edition : 24.04.91
Replaces : 25.1.91
Test oil : ISO-4113

Combination no. : 0 400 876 384

Injection pump

Pump designation : PES6A95D32ORS2806 EP type number : 0 410 896 898

Governor

Governor design. : RSV375...1125A0c2178

-8R

Governer no. : 0 420 233 280

Customer—spec. information Customer : VALMET

Engine : 6200

1st version kW : 88.0 Rated speed : 2250

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

per vacues ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00

Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 7.3...7.5

100 s: (7.1...7.7)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 375.0 Rack travel in mm : 4.3...4.5 Del.quantity cm3/ : 1.2...1.6

vel.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 d rpm : 800

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 73.0...75.0 1000 : (71.0...77.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever position degrees: 85...93 Testing: 1st rack travel in: 8.00 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 Speed 3rd rack travel in: 4.00

Speed rpm : 1185...1215 4th rack travel in: 1350 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 67...75 Setting point w/out bumper spring

rpm : 375 Rack travel in mm: 4.0

Testing:

: 100 Speed rpm Minimum rack trave: 19.50 Speed : 375 rom Rack travel in mm : 4.30...4.50

Rack travel in mm: 2.00 Speed rpm : 425...485

TORQUE CONTROL

Torque control curve - 1st version 1st speed rpm : 1100

Rack travel in m: 9.00...9.10 2nd speed rpm : 500 4th speed rpm : 980

Rack travel in m: 9.30...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 500 Del.quantity cm3/: 57.0...60.0

1000 s: (54.5...62.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 195.0...205.0 1000 s: (192.0...208.0) Rack travel in mm: 19.50...21.00

LOW IDLE

Speed rpm : 375 Rack travel in mm : 4.30...4.50 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.50 1000 s: (5.50)

4

Remarks:

APPLICATION

Tractor (tractor engines)

A14

Note remarks

: KHD 1 g 50 : 26.04.91 Test sheet Edition : 1.2.91 Replaces Test oil : ISO-4113

Combination no. : 0 400 876 387

Injection pump

Pump designation : PES6A95D41DRS2625 : 0 410 896 926 EP type number

Governor

Governor design. : RSV375...1200A5C2253

: 0 420 232 560 Governer no.

Customer—spec. information Customer : KHD

Engine : BF6L913B

: 125.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 1.90...2.00 Prestroke mm

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 8.5...8.6

100 s: (8.3...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0
Rack travel in mm : 7.3...7.5
Del.quantity cm3/ : 1.1...1.7

100 s: (0.8...1.9) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 800

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 94...102

Testing:

1st rack travel in: 10.10

rpm : 1240...1250 Speed

2nd rack travel in: 4.00

rpm : 1260...1290 Speed

3rd rack travel in: 4.00

Speed rpm : 1280...1310 4th rack travel in: 1440

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 61...69

Setting point w/out bumper spring

speed rpm : 375 Rack travel in mm : 5.5

Testing:

: 100 Spead rpm Minimum rack trave: 19.50 : 375 rpm.

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 Speed man : 435...495

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 11.10...11.20

2nd speed rpm : 500

Rack travel in m: 12.00...12.10

4th speed rpm : 1030

Rack travel in m: 10.40...10.60

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm

hPa : 800 Pressure : 12.00...12.10 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.60

2nd pressure hPa : 350

Rack travel in m: 11.70...11.80

3rd pressure hPa : 280

Rack travel in m: 11.10...11.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm: 800 Del.quantity cm3/: 89.0...91.0 1000 s: (86.5...93.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 55.0...57.0 1000 s: (53.0...59.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 16.30...16.70

Remarks:

: TX 150

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet : MB 14,7 c10 Edition : 26.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 838 711

Injection pump

Pump designation: PE8P110A320/3LS3842-

.

EP type number : 0 411 818 724

Governor

Governor design. : RQ300/1050PA187-31

Governer no. : 0 421 801 553

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442

1st version kW : 203.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10

: (3.95...4.15)
Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-

4-1

Phasing : 0-45-90-135-180-225-

Phasing : 270-315

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 10.4...10.6

100 s: (10.1...10.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 8.2...8.5 Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm3: 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 650

Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 750

Del.quantity : 104.0...106.0 1000 : (101.5...108.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 14.0

Testing:

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1st rack travel in: 10.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.9 Testing: Speed rpm : 200 Minimum rack trave: 9.00 Speed rpm : 300 Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00 rpm : 400...440 START CUT-OUT Speed $1/\min : 1 (0)$ FUEL DELIVERY CHARACTERISTICS 1st version RACK STOP ADJUSTMENT Speed rpm : 600 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.80 Speed rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0) Remarks:

Note remarks

Test sheet : DAF 11,7 o1 Edition : 24.04.91

Replaces : -

Test oil : ISO-4113

Combination no. : 0 401 846 568

Injection pump

Pump designation : PE6P110A320RS529 EP type number : 0 411 816 179

Governor

Governor design. : RQ275/1000PA1012 Governer no. : 0 421 801 595

Customer-spec. information

Customer : DAF

Engine : LT 195 G

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 14.50...15.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50...4.70 & maximum rack tra: 14.0...15.0 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.00...15.10

Del.quantity cm3/: 19.3...19.5

100 s: (19.0...19.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.0...7.2 Del.quantity cm3/ : 2.2...2.7

100 s: (1.9...2.9)

Spread cm3 : 0.4 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 600

Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

Del.quantity : 193.0...195.0 1000 : (190.5...197.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50

Speed rpm : 1025...1040

2nd rack travel in: 4.00

rpm : 1105...1135 Speed 4th rack travel in: 1300

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.1

Testing:

Speed rpm : 100 Minimum rack trave: 10.50

Speed rpm : 300 Rack travel in mm : 7.00...7.20 Rack travel in mm : 2.00 Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.30

Rack travel in m: 14.50...14.70

2nd speed rpm : 600 Rack travel in m: 15.60...15.80

3rd speed rpm : 750

Rack travel in m: 15.10...15.20

4th speed rpm : 825

Rack travel in m: 14.70...14.90

Ameroid/Altitude Compensator Test

1st version

Setting

Speed : 600 חכר Pressure hPa : 1000

Rack travel mm : 15.00...15.10

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 12.50...12.70

2nd pressure hPa : 440

Rack travel in m: 14.40...14.50

3rd pressure hPa : 340 Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 980 Del.quantity cm3/ : 178.0...182.0 1000 s: (175.0...185.0)

Aneroid pressure h: -

Speed : 600 rom

Del.quantity cm3/: 132.0...134.0 1000 s: (129.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50 peed rpm : 1025...1040 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.20

Del.quantity cm3/: 22.0...27.0 1000 s: (19.5...29.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : VOL 12,2 a1 : 29.04.91 : 02.10.89 Edition Replaces : ISO-4113 Test oil

: 0 401 846 826 Combination no.

Injection pump

Pump designation : PE6P120A320RS3178 : 0 411 826 752 EP type number

Governor

Governor design. : RQV250...1025PA657-

: 0 421 813 567 Governer no.

Customer spec. information Customer : VOLVO

Engine : TD122FS

: 287.0 1st version kW : 2050 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.60...3.70 Prestroke mm : (3.55...3.75) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm: 4.8...5.1 Del.quantity cm3/: 1.8...2.3

100 s: (1.5...2.5) cm3 : 0.5 Spread

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 : 1.00...1.40 1st speed travel mm

: 450 2nd speed rpm

: 3.60...4.20 travel man

3rd speed : 800 LDW

travel mm : 6.30...6.70

4th speed rpm : 1070

: 8.00...8.20 travel mm

5th speed rpm : 1150

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1090 Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rom : 700

Aneroid pressure h: 1200 Del.quantity : 252.0...254.0 1000 : (249.0...257.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 61...69

Testina:

1st rack travel in: 13.00

Speed rpm : 1055...1065

2nd rack travel in: 4.00

rpm : 1140...1170 Speed

4th rack travel in: 1250

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 6...14

Testing:

Speed : 100 rpm Minimum rack trave: 6.40 npm : 250

Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

Speed : 250...400 rom

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 500 rpm hPa : 1200 Pressure

Rack travel mm : 14.00...14.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.20

2nd pressure hPa : 120 Rack travel in m: 10.20...10.30

3rd pressure hPa : 810

Rack travel in m: 13.30...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed : 700 rom

Del.quantity cm3/: 163.0...165.0 1000 s: (160.0...168.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1055...1065 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

: 250 Speed rpm

Rack travel in mm : 4.80...5.10

Del.quantity cm3/: 18.0...23.0 1000 s: (15.5...25.5) Spread cm3 : 5.00

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Note remarks

Test sheet : DAF 11,7 h3 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 931

Injection pump

Pump designation : PE6P120A320RS3248Z

EP type number : 0 411 826 798

Governor

Governor design. : RQV250...1000PA851-4

: 0 421 813 828 Governer no.

Customer-spec. information Customer : DAF

: WS 222 Engine

1st version kW : 222.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.20...4.30 Prestroke mm : (4.15...4.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 18.9...19.1

100 s: (18.6...19.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1045 1st speed

travel mm : 7.80...8.00 2nd speed rpm : 250 travel mm : 0.70...1.10

3rd speed : 400 rpm

: 2.50...3.10 travel mm

rpm : 750 4th speed

travel mm : 4.80...5.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1
Speed rpm: 1100
Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 1000

Del.quantity : 189.0...191.0

1000 : (186.0...194.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 10.80 Speed rpm : 1040...1050 2nd rack travel in: 4.00

Speed rpm : 1120...1150 4th rack travel in: 1250

rpm : 0.00...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 82...90

Testina:

Speed rpm : 100 Minimum rack trave: 7.50 Speed rpm : 250

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rom : 260...380 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm

hPa : 1000 Pressure

Rack travel mm : 11.80...11.90

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 11.10...11.32 2nd pressure hPa : 230

Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 164.0...166.0 1000 s: (161.0...169.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1040...1050

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.90...6.10

Remarks:

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Note remarks

: DAF 8,2 d 1 Test sheet Edition : 22.03.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 944

Injection pump

Pump designation : PE6P110A720RS3257Z

: 0 411 816 779 EP type number

Governor

Governor design. : RQV325...1200PA910-1

: 0 421 813 880 Governer no.

Customer-spec. information Customer : DAF

: HS 206 G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 Prestroke mm : (3.65...3.85)

Rack travel in mm : 13.50...14.50

Firing order : 1- 5- 3- 6Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.40...7.60 & maximum rack tra: 13.7...14.7 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 14.3...14.5

100 s: (14.1...14.8)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 325.0 2nd speed Rack travel in mm : 7.8...8.0 Del.quantity cm3/: 1.4...1.9

100 s: (1.1...2.1)

cm3 : 0.4Spread 100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1245 : 8.10...8.30 travel mm 325 2nd speed rpm

: 0.90...1.30 travel mm

3rd speed 500 rpm travel mm 2.90...3.50

4th speed 008 rpm

4.60...5.00 travel mm

5th speed 1500 rom

: 11.00...12.00 trave! mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1240 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000 Del.quantity : 143.5...145.5

1000 : (141.0...148.0)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version Control lever

position degrees: 118...126

Testina:

1st rack travel in: 13.20 Speed rpm : 1235...1250 2nd rack travel in: 4.00

Speed rpm : 1360...1390 4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 80...88

Testing:

Speed rpm : 100 Minimum rack trave: 7.90 rpm : 325 Speed

Rack travel in mm : 6.30...6.50

CONSTANT REGULATION

rpm : 340...460 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rpm Pressure hPa : 1000

Rack travel mm : 14.20...14.30

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 11.00...11.20

2nd pressure hPa : 430

Rack travel in m: 13.40...13.50

3rd pressure hPa : 200

Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 80.5...82.5 7000 s: (78.0...85.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20

rpm : 1235...1250 Speed

LOW IDLE

Speed rpm : 325 Rack travel in mm : 6.30...6.50

Remarks:

Note remarks

Test sheet : DAF 3,2 c 1 : 22.03.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 846 945

Injection pump

Pump designation : PE6P110A720RS3257Z

EP type number : 0 411 816 779

Governor

Governor design. : RQ325/1200PA913-2

Governer no. : 0 421 801 539

Customer-spec. information Customer : DAF

Engine : HS 206 G

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 13.50...14.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Folerance $+ - \circ : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.40...7.60 & maximum rack tra: 13.7...14.7 Difference ° CS : 1.75...3.25

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.20...14.30

Del.guantity cm3/: 14.3...14.5

100 s: (14.1...14.8)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 325.0 Rack travel in mm : 7.8...8.0 Del.quantity cm3/ : 1.4...1.9 100 s: (1.1...2.1)

cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 550 Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 143.5...145.5 1000 : (141.0...148.0)

cm3 : 4.00 1000 : (7.50) Spread

RATED SPEED

1st version

Setting point:

Rack travel in mm: 15.8

Testing:

1st rack travel in: 13.20

rpm : 1235...1250 Speed

2nd rack travel in: 4.00

Speed rpm : 1325...1355 4th rack travel in: 1500 nom : 0.00...1.00Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 6.4 Testing: Speed .rpm : 100 Minimum rack trave: 7.90 Speed rpm : 325
Rack travel in mm : 6.30...6.50
Rack travel in mm : 2.00
Speed rpm : 395...435 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 14.30...14.40 2nd speed rpm : 1200 Rack travel in m: 14.20...14.40

Aneroid/Altitude Compensator Test

1st version Setting Speed : 600 rom Pressure hPa : 1000 Rack travel mm : 14.20...14.30

Measurement 1/min: 600 Speed

1st pressure hPa : -Rack travel in m: 11.00...11.20 2nd pressure hPa : 430 Rack travel in m: 13.40...13.50 3rd pressure hPa : 200 Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: -Speed rpm : 600 Del.quantity cm3/: 80.5...82.5 1000 s: (78.0...85.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.20

rpm : 1235...1250 Speed

LOW IDLE

Speed rpm : 325 Rack travel in mm : 6.30...6.50

Remarks:

A28

Note remarks

Test sheet : KHD 9,6 x Edition : 26.04.91 Replaces : 1.2.91 Test oil : ISO-4113

: 0 401 848 792 Combination no.

Injection pump

Pump designation: PE8P120A920/5LS3208

EP type number

: 0 411 828 721

Governor

Governor design. : RQ325/1150PA879

Governer no.

: 0 421 801 417

Customer-spec. information : KHD Customer

: BF8L513CP Engine

1st version kW : 294.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.40...3.50

: (3.35...3.55)

Rack travel in mm : 15.00...19.00 Firing order : 1-8-7- 2- 6- 5-

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1150

Rack travel in mm : 12.30...12.40

Del.guantity cm3/: 18.9...19.1

100 s: (18.6...19.4)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 325.0 2nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.9

100 s: (1.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 700

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed Aneroid pressure h: 900

Del.quantity : 189.0...191.0 1000 : (186.0...194.0)

: 6.00 Spread cm3

1000 : (10.00)

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 15.5

Testing:

1st rack travel in: 11.30

Speed rpm : 1190...1200 2nd rack travel in: 4.00

Speed rpm : 1260...1290 4th rack travel in: 1400 Speed

rpm : 0.00...1.00Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm: 6.6

Testing:

rpm : 100 Speed Minimum rack trave: 8.10

Speed rpm : 325
Rack travel in mm : 6.50...6.70
Rack travel in mm : 2.00

Speed : 400...440 rpm

CONSTANT REGULATION

rpm : 300...510 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 12.30...12.40

2nd speed rpm : 600

Rack travel in m: 12.30...12.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 400 rpm

hPa : 900 Pressure

: 12.80...12.90 Rack travel mm

Measurement

1/min: 400 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.40 2nd pressure hPa : 450 Rack travel in m: 11.00...11.10 3rd pressure hPa : 590

Rack travel in m: 12.00...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 104.0...106.0 1000 s: (101.0...109.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 235.0...265.0 1000 s: (230.0...270.0)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,

the start position must be reached.

APPLICATION

Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 14,7 d11 : 19.03.91 Edition Replaces Test oil : ISO-4113 Combination no. : 0 401 848 793 Injection pump EP type number : 0 411 818 714 Governor Governor design. 10 : 0 421 813 930 Governer no. Customer-spec. information : MERCEDES-BENZ Customer Engine : 0M442 1st version kW : 192.0 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness

Pump designation : PE8P110A320LS3842 : RQ\/300...1050PA884x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 8-7-2-6-3-5-4-1 Firing order : 0-45-90-135-180-225-Phasing Phasing : 270-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 8 BASIC SETTING 1st speed rom : 1050Rack travel in mm : 11.50...11.60 Del.quantity cm3/: 11.7...11.9 100 s: (11.4...12.1) Spread cm3 : 0.4100 s: (0.8) rpm : 300.0 2nd speed Rack travel in mm: 8.4...8.7 Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3) Spread cm3 : 0.4100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 300 1st speed travel mm : 1.00...1.50 : 558 2nd speed **m**ca : 4.30...4.80 travel mm : 820 3rd speed rpm : 5.90...6.40 travel mm : 1107 4th speed rpm : 8.30...8.80 travel mm 5th speed : 1183 rom : 9.80...10.30 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 1100 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

rpm : 1050 Speed

; 117.0...119.0 1000 : (114.5...121.5) Del.quantity

cm3 : 4.00 Spread

1000 : (8.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 10.50

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 86...94

Testing:

: 200 Speed rpm Minimum rack trave: 10.50 Speed rpm : 300

Rack travel in mm : 8.40...8.70

CONSTANT REGULATION

rpm : 300...450 Speed

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 98.0...104.0

1000 s: (95.0...107.0)

Spread cm3 : 6.00

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed : 100 LOW

B04

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Note remarks

: MB 14,7 L 3 : 19.03.91 Test sheet **Fdition** : 18.2.91 Replaces : ISO-4113 Test oil

: 0 401 848 806 Combination no.

Injection pump

Pump designation : PE8P110A320LS3846-1

: 0 411 818 719 EP type number

Governor

Governor design. : RQ300/1050PA187-28

: 0 421 801 492 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 Engine

1st version kW : 213.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 12.2...12.4

100 s: (11.9...12.6)

Spread cm3 : 0.8

100 s: (1.3)

rpm : 300.0 2nd speed

Rack travel in mm : 6.4...7.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

cm3 : 0.6Spread

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 650 Speed

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

122.0...124.0 Del.quantity

1000 : (119.5...126.5)

cm3 : 8.50 Spread

1000 : (13.00)

RATED SPEED

1st version

Setting point: Speed rpm

Rack travel in mm: 13.5

Testing:

1st rack travel in: 10.20

Speed rpm : 1080...1090

2nd rack travel in: 4.00

Speed rpm : 1160...1190 4th rack travel in: 1300 Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring

: 300 Speed rom Rack travel in mm: 6.7

Testing:

Speed rom : 200 Minimum rack trave: 8.50

Speed rpm : 300 Rack travel in mm : 6.40...7.00

Rack travel in mm : 2.00 Speed rpm : 390...430

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 119.0...125.0

1000 s: (116.5...127.5)

cm3 : 11.00 Spread

1000 s: (14.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20

rpm : 1080...1090 Speed

STARTING FUEL DELIVERY

: 100 Speed rom

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Note remarks

Test sheet : MB 14,7 d13 Edition : 26.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 848 811

Injection pump

Pump designation : PE8P110A320LS3842-2

EP type number : 0 411 818 722

Governor

Governor design. : RQV350...1050PA378-

11

Governer no. : 0 421 813 714

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening .

prassure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

Phasing : 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.1)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 350.0 Rack travel in mm : 7.9...8.5

Del.quantity cm3/: 1.5...2.1 100 s: (1.2...2.3)

cm3 : 0.4Spread

100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.50...1.70 travel mm

rpm : 800 2nd speed

: 4.90...5.30 travel mm

3rd speed : 1100 rpm

travel mm : 7.90...8.50

: 1150 4th speed rom

: 8.90...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1110 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

B07

Del.quantity : 137.0...139.0 1000 : (134.5...141.5)

cm3 : 4.00 Spread 1000 : (7.00)

RATED SPEED

1st version Control lever

position degrees: 118...126

Testina:

1st rack travel in: 11.70

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1140...1170

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 70...78

Testing:

Speed rpm : 250 Minimum rack trave: 9.50

Speed rpm : 350 Rack travel in mm : 7.90...8.50

CONSTANT REGULATION

rpm : 350...450 Speed

START CUT-OUT

1/min: 270 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 124.0...128.0 1000 s: (121.0...131.0)

cm3 : 5.00

Spread 1000 s: (8.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.70

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed : 100 rom

Del.quantity cm3/: 150.0...170.0

1000 s: (146.0...174.0)

Remarks:

B08

BOSCH INJ. PUMP TEST SPECIFICATIONS
Note remarks

Test sheet : MB 14,7 c11 Edition : 26.04.91

Replaces : -

Test oil : ISO-4113

Combination no. : 0 401 848 817

Injection pump

Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714

Governor

Governor design. : RQ300/1050PA187-31

Governer no. : 0 421 801 553

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442

1st version kW : 195.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-4- 1

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 10.4...10.6

100 s: (10.1...10.8)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 8.2...8.5 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.3)

Spread cm3 : 0.4 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 650 Rack travel in mm: 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 750

Del.quantity : 104.0...106.0 1000 : (101.5...108.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 650 Rack travel in mm : 14.0

Testing:

1st rack travel in: 10.80

rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 Speed rom : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.9 Testing: Speed rpm : 200 Minimum rack trave: 9.00 Speed rpm : 300
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 400...440 START CUT-OUT Speed $1/\min : 1(0)$ FUEL DELIVERY CHARACTERISTICS 1st version rpm : 1050 Speed Del.quantity cm3/: 118.0...122.0 1000 s: (115.0...125.0) cm3 : 6.00 Spread 1000 s: (9.00) RACK STOP ADJUSTMENT Speed rpm : 600 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.80 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0) Remarks:

Note remarks

Test sheet : MB 14,7 d12 : 24.04.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 848 818

Injection pump

Pump designation : PE8P110A320LS3842 EP type number : 0 411 818 714

Governor

Governor design. : RQV300...1050PA884-8

: 0 421 813 889 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442

: 195.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Openina .

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 : (3.95...4.15) Prestroke mm Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 10.4...10.6

100 s: (10.1...10.8)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.02nd speed Rack travel in mm : 8.2...8.5 Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.3) cm3 : 0.4Spread

100 s: (0.7)

(B) Setting of injection pump with covernor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.00...1.50

2nd speed rpm : 608

travel mm : 4.80...5.30 3rd speed rpm : 820

travel mm 5.90...6.40

1107 4th speed man travel mm

8.30...8.80

1280 5th speed man

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1130 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 104.0...106.0 1000 : (101.5...108.5) cm3 : 4.00 1000 : (7.50) Spread RATED SPEED 1st version Control Lever position degrees: 117...125 Rack travel in mm : 8 Testing: 1st rack travel in: 10.80 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1250 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: : 200 Speed < rpm Minimum rack trave: 10.00 Speed : 300 rpm Rack travel in mm : 6.80...7.00 CONSTANT REGULATION rpm : 300...450 Speed START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version : 1050 Speed rpm Del.quantity cm3/: 118.0...122.0 1000 s: (115.0...125.0) Spread cm3 : 6.00 1000 s: (9.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.80 Speed rpm : 1090...1100

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

B12

Speed

STARTING FUEL DELIVERY

rpm

: 100

Note remarks

Test sheet : MB 14,7 c12 Edition : 26.04.91

Replaces

: ISO-4113 Test oil

: 0 401 848 819 Combination no.

Injection pump

Pump designation: PE8P110A320LS3842-1

EP type number : 0 411 818 716

Governor

Governor design. : RQ300/1050PA187-31

: 0 421 801 553 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 Engine

: 203.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 10.4...10.6

100 s: (10.1...10.8)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed

Rack travel in mm : 8.2...8.5 Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.3) cm3 : 0.4

Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 650 Speed

Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 104.0...106.0

1000 : (101.5...108.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version

Setting point:

: 650 Speed rpm Rack travel in mm: 14.0

1st rack travel in: 10.80

rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.9 Testing: rpm : 200 Speed Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00 : 400...440 Speed rpm START CUT-OUT $1/\min : 1 (0)$ Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1050 Del.quantity cm3/ : 118.0...122.0 1000 s: (115.0...125.0) Spread cm3 : 6.001000 s: (9.00) RACK STOP ADJUSTMENT rpm : 600 Speed **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.80 Speed rpm : 1090...1100 STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Note remarks

Test sheet : KHD 16,0 e : 24.04.91 Edition Replaces : 19.3.91 : ISO-4113 Test oil

Combination no. : 0 401 849 752

Injection pump

Pump designation: PE10P110A920/5LS3276

EP type number : 0 411 819 712

Governor

Governor design. : RQV300...1150PA997

: 0 421 813 927 Governer no.

Customer-spec, information Customer : KHD

Engine : F 10L513

: 223.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

: 1- 10- 9- 4- 3- 6-Firing order

5- 8- 7- 2

: 0-27-72-99-144-171-216-243-288-315 : 0.50 (0.75) Phasing

Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 10.8...11.0

100 s: (10.5...11.3)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 375.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.2...1.7

100 s: (1.0...2.0)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 375 travel mm

: 2.30...2.70 2nd speed 510 rpm : travel mm 3.60...4.10

3rd speed 870 rom 7.40...7.90 travel mm

4th speed 1200 rom

9.90...10.40 travel mm 1300 5th speed rpm

travel mm : 10.90...11.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1250 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Del.quantity : 100.0...113.0)

Spread

cm3 : 4.001000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 8.90

Speed rpm : 1190...1200 2nd rack travel in: 4.00

Speed rpm : 1270...1300 4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 15...23

Testing:

rpm : 100 Speed

Minimum rack trave: 7.10

rpm : 375

Rack travel in mm : 4.40...4.60

CONSTANT REGULATION

rpm : 300...420 Speed

START CUT-OUT

Speed

1/min : 220 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 100.0...104.0

1000 s: (97.0...107.0)

Spread cm3 : 6.00

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...165.0 1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 375 Rack travel in mm : 4.40...4.60

Remarks:

Note remarks

: MB 18,3 n 2 : 26.04.91 Test sheet Edition

Replaces

Test oil : ISO-4113

: 0 401 849 753 Combination no.

Injection pump

Pump designation : PE10P110A320LS3844

EP type number : 0 411 819 710

Governor

Governor design. : RQ300/1050PA187-32

: 0 421 801 554 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 443 Engine

: 243.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Lenath mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 9.00...12.00

: 10-9-4-1-Firing order

- 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-

216-261-288-333 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 10.2...10.4

100 s: (9.9...10.6)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 300.0 2nd speed

Rack travel in mm: 8.0...8.3 Del.quantity cm3/: 1.5...2.1

100 s: (1.2...2.3)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 600 Rack travel in mm : 13.60...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 102.0...104.0

1000 : (99.5...106.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm: 13.7

Testina:

1st rack travel in: 10.60

Speed rpm : 1090...1100 2nd rack travel in: 4.00

Speed rpm: 1150...1180 4th rack travel in: 1200

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.9

Testing:

Speed rpm : 200 Minimum rack trave: 8.50 Speed rpm : 300

Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00

Speed : 400...440 rom

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 1050 rpm

Del.quantity cm3/: 116.0...120.0 1000 s: (113.0...123.0)

cm3 : 6.00Spread 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0)

Remarks:

Note remarks

Test sheet : DAF 11,7017 : 24.04.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 295R

Injection pump

Pump designation : PE6P120A320RS415-1R

EP type number : 0 411 826 123

Governor

: RSV250...1000P5A508-Governor design.

: 0 421 833 194 Governer no.

: 0763424 Cust. part no.

Customer-spec. information Customer : DAF

: DKXD 1160 ATi M Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 17.6...17.8

100 s: (17.3...18.1)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed

Rack travel in mm: 6.7...6.9

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 700

Del.quantity : 1/0.0...181.0)

: 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 10.00

Speed rpm : 1035...1045

2nd rack travel in: 4.00 rpm : 1115...1145 Speed 3rd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 6.0 Testing: Speed : 100 rpm rpm : 250 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 Speed rpm : 630...690 TORQUE CONTROL Torque control curve - 1st version rpm : 850 1st speed Rack travel in m: 11.40...11.50 2nd speed rpm : 400 Rack travel in m: 11.40...11.60 3rd speed rpm : 300 Rack travel in m: 11.70...12.20 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm

1st version
Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 600

1st pressure hPa : Rack travel in m: 10.30...10.50
2nd pressure hPa : 210
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: Speed rpm : 600
Del.quantity cm3/: 140.0...142.0
1000 s: (137.0...145.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 1035...1045

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/: 305.0...345.0
1000 s: (301.0...349.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.40...6.60

Remarks:

BOSCH INL. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : DAF 11,6018 : 24.04.91 Replaces Test oil : ISO-4113 : 0 401 876 2958 Combination no. Injection pump Pump designation: PE6P120A320RS415-1S : 0 411 826 123 EP type number Governor Governor design. : RSV250...1000P5A508-Governer no. : 0 421 833 194 Cust. part no. : 0763415 Customer-spec. information Customer : DAF Engine : DKX 1160 ATi M TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness

: 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

: 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 850 1st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 19.7...19.9 100 s: (19.4...20.2) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.75 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 Aneroid pressure h: 700 Del. quantity : 197.0...199.0 1000 : (194.0...202.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 11.00 rpm : 1035...1045 Speed

Prestroke mm

x Length mm

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

2nd rack travel in: 4.00
Speed rpm: 1115...1145
3rd rack travel in: 4.00
Speed rpm: 1190...1220
4th rack travel in: 1350
Speed rpm: 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rom : 250

Speed rpm : 250 Rack travel in mm : 6.0

Testing: Speed rpm : 100 Speed rpm : 250

Rack travel in mm : 6.40...6.60

Rack travel in mm : 2.00 Speed rpm : 630...690

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 850
Rack travel in m: 12.30...12.40
2nd speed rpm : 400
Rack travel in m: 12.30...12.50

3rd speed rpm : 300 Rack travel in m: 12.60...13.10

Aneroid/Altitude Compensator Test

1st version Setting Speed rpm : 600 Pressure hPa : 700

Rack travel mm : 12.10...12.20

Measurement Speed 1/min: 600

1st pressure hPa : -Rack travel in m: 10.30...10.50

2nd pressure hPa : 270

Rack travel in m: 11.70...11.80

3rd pressure hPa : 190 Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: Speed rpm : 600
Del.quantity cm3/: 140.0...142.0
1000 s: (137.0...145.0)

1st version 1mm rack travel less than

full load rack tr: 11.00 Speed rpm : 1035...1045

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 305.0...345.0 1000 s: (301.0...349.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

BREAKAWAY

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Remarks:

Note remarks

Test sheet Edition

: DAF 11,6019 : 24.04.91

Replaces

Test oil

: ISO-4113

Combination no.

: 0 401 876 295T

Injection pump

Pump designation : PE6P120A320RS415-1T

EP type number

: 0 411 826 123

Governor

Governor design.

: RSV250...1000P5A508-

Governer no.

: 0 421 833 194

Cust. part no.

: 0763410

Customer-spec. information

Customer

: DAF

Engine

: DKVD 1160 ATI M

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 019

Opening 1

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 600

Rack travel in mm : 9.50...9.60

Del.quantity cm3/: 12.3...12.5

100 s: (12.0...12.8)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 250.0

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm

Del.quantity

: 123.5...125.5 : (120.5...128.5)

1000 Cm3

: 5.00

1000 : (9.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.90

Speed

rpm : 1035...1045

2nd rack travel in: 4.00

rpm : 1115...1145 Speed 3rd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1350 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.0 Testing: Speed : 100 rpm Speed : 250 Lbw Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 Speed rpm : 630...690 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 8.90...9.10 2nd speed rpm : 600 Rack travel in m: 9.70...9.80 3rd speed rpm : 735 Rack travel in m: 9.40...9.50 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 980 Speed Del.quantity cm3/: 136.5...140.5 1000 s: (133.5...143.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.90 rpm : 1035...1045 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 305.0...345.0 1000 s: (301.0...349.0) Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 250 Speed Rack travel in mm : 6.40...6.60 Remarks:

Note remarks

Test sheet : DAF 11,6020 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 2950

Injection pump

Pump designation : PE6P120A320RS415-1U

EP type number : 0 411 826 123

Governor

: RSV250...1000P5A508-Governor design.

: 0 421 833 194 Governer no.

: 0763405 Cust. part no.

Customer-spec. information

Customer : DAF

: DKV 1160 ATi M Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90

: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order

: 1-5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 10.30...10.40

Del.quantity cm3/: 14.2...14.4

100 s: (13.9...14.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm: 6.7...6.9

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Del.quantity : 142.0...144.0

1000 : (139.0...147.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testina:

1st rack travel in: 9.10

rpm : 1035...1045 Speed

2nd rack travel in: 4.00

Speed rpm : 1115...1145 3rd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 19...27 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.0 Testina: : 100 Speed rpm Speed : 250 rpm Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 rpm : 630...690 Speed TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 10.10...10.30 2nd speed npm : 600 Rack travel in m: 10.60...10.70 rpm : 735 3rd speed Rack travel in m: 10.40...10.50 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 980 Del.quantity cm3/ : 157.0...161.0 1000 s: (154.0...164.8) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 rom : 1035...1045 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 305.0...345.0 1000 s: (301.0...349.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 6.40...6.60 Remarks:

Note remarks

Test sheet : DAF 11,6021 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 296N

Injection pump

Pump designation : PE6P120A320RS415-1N

EP type number : 0 411 826 123

Governor

Governor design. : RSV250...1100P5A508-

: 0 421 833 195 Governer no.

: 0763409 Cust. part no.

Customer-spec. information

Customer : DAF

: DKVD 1160 ATi M Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 10.20...10.30

Del.guantity cm3/: 13.9...14.1

100 s: (13.6...14.4)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 25<u>0</u>.0 2nd speed

Rack travel in mm: 6.7...6.9

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread

cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

: 139.5...141.5 1000 : (136.5...144.5) Del.quantity

Spread cm3 : 5.00

: (9.00)

1000

RATED SPEED

1st version Control Lever

position degrees: ?

Testing:

1st rack travel in: 8.40

rpm : 1135...1145 Speed

2nd rack travel in: 4.00 rpm : 1200...1230 Speed 3rd rack travel in: 4.00 Speed rpm : 1270...1300 4th rack travel in: 1430 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 6.0 Testing: : 100 Speed MOM rpm : 250 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 Speed : 630...690 rpm TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 9.40...9.60 2nd speed rpm : 600 Rack travel in m: 10.50...10.60 3rd speed rpm : 700 Rack travel in m: 10.20...10.30 4th speed rpm : 800 Rack travel in m: 9.80...10.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 980 Del.quantity cm3/: 144.5...148.5 1000 s: (141.5...151.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.40 : 1135...1145 Speed man STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 305.0...345.0 1000 s: (301.0...349.0) Rack travel in mm : 19.50...21.00 LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.40...6.60

Remarks:

BOSCH NJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet Edition : DAF 11,6022 : 24.04.91 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 401 876 296P Tolerance + - ° : 0.30 (0.75) Injection pump BASIC SETTING Pump designation : PE6P12DA32DRS415-1P : 0 411 826 123 EP type number 1st speed rpm: 600 Governor Governor design. : RSV250...1100P5A508-Rack travel in mm : 11.40...11.50 : 0 421 833 195 Del.guantity cm3/: 16.7...16.9 Governer no. 100 s: (16.4...17.2) Cust. part no. : 0763404 Customer-spec. information Spread cm3 : 0.5Customer : DAF 100 s: (0.9) Engine : DKV 1160 ATi M 2nd speed rpm : 250.0 TEST BENCH REQUIREMENTS Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.8 100 s: (1.2) Overflow valve : 1 417 413 025 GUIDE SLEEVE POSITION Control-lever position Inlet press., bar: 1.50 Degree: -3 rpm : 800 Speed Test nozzie holder Rack travel in mm : 0.30...0.70 : 1 688 901 019 assembly Governor spring pre-tension Openina Click setting x : 4.75 : 207...210 pressure, bar FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate diameter mm : 0,8 1st version Speed rpm:600Aneroid pressure h: 700 Test lines : 1 680 750 067 Del.quantity : 167.0...169.0 1000 : (164.0...172.0) : 5.00 Outside diameter Spread cm3 x Wall thickness 1000 : (9.00) : 6.00X1.50X1000 x Length mm RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version

Set equal delivery quant. per values ___

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Testing:

Control lever

position degrees: ?

1st rack travel in: 9.20 Speed rpm : 1135...1145

2nd rack travel in: 4.00 rpm : 1200...1230 Speed 3rd rack travel in: 4.00 Speed rpm : 1270...1300 4th rack travel in: 1430 Speed rom : 0.30...1.40LOW TOLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 6.0 Testing: : 100 Speed rpm : 250 Speed rpm Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 Speed : 630...690 rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 980 Rack travel in m: 10.20...10.40 2nd speed rpm : 600 Rack travel in m: 11.70...11.80 3rd speed rpm : 725 Rack travel in m: 11.00...11.20 4th speed rpm : 800 Rack travel in m: 10.50...10.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 700 : 11.40...11.50 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : -Rack travel in m: 10.30...10.50 2nd pressure hPa : 380 Rack travel in m: 11.10...11.20 3rd pressure hPa : 350 Rack travel in m: 10.60...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 980 Del.quantity cm3/ : 158.0...162.0 1000 s: (155.0...165.0)

Aneroid pressure h: Speed rpm : 600
Del.quantity cm3/ : 140.0...142.0
1000 s: (137.0...145.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 1135...1145

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 305.0...345.0 1000 s: (301.0...349.0) Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.40...6.60

Remarks:

Note remarks

: DAF 11,6t30 Test sheet Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 297F

Injection pump

Pump designation : PE6P110A320RS385-1F

EP type number : 0 411 816 146

Governor

Governor design. : RSV250...750P7A507

: 0 421 833 185 Governer no.

: 0763398 Cust. part no.

Customer-spec. information Customer : DAF

: DK 1160 A(1500) Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.00...11.20

Del.quantity cm3/: 13.8...14.0

100 s: (13.6...14.3)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 2.5...3.3

100 s: (2.2...3.5)

cm3 : 0.4 100 s: (0.7) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 138.5...140.5 Del.quantity 1000 : (136.0...143.0)

Spread : 4.00 cm3

1000 : (7.50)

RATED SPEED

1st version

Control Lever

position degrees: 90...98

Testing:

1st rack travel in: 10.00

Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm : 780...795

4th rack travel in: 950

rpm : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 65...73

Setting point w/out bumper spring Speed rpm : 250

rpm Rack travel in mm: 6.9

: 250 Speed rpm

Rack travel in mm : 6.80...7.00 Rack travel in mm : 2.00 rpm : 265...325 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.00 Speed rpm : 750...755

LOW IDLE

Speed rpm : 250 Rack travel in mm : 6.80...7.00 Del.quantity cm3/: 25.0...33.0 1000 s: (22.5...35.5)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

APPLICATION

Generator

Note remarks

: DAF 11,6t31 Test sheet : 24.04.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 876 297J

Injection pump

Pump designation : PE6P110A320RS385-1J

EP type number : 0 411 816 146

Governor

Governor design. : RSV250...750P7A507

: 0 421 833 185 Governer no.

Cust. part no. : 0376290

Customer-spec. information Customer : DAF

Engine : DKTD 1160(1500)

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 11.20...11.40

Del.quantity cm3/: 14.1...14.3

100 s: (13.8...14.5)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed

Rack travel in mm : 6.8...7.0 Del.quantity cm3/: 2.5...3.3

100 s: (2.2...3.5)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 141.0...143.0 Del.quantity 1000 : (138.5...145.5)

: 4.00 Sm3 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.20

Speed rpm : 750...755

2nd rack travel in: 4.00

: 780...795 Speed rpm

4th rack travel in: 950

rpm : 0.30...1.40

CO5

LOW IDLE 1 Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6.9 Speed rpm : 250

Speed rpm : 250
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 rpm : 750...755 Speed

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.80...7.00
Del.quantity cm3/ : 25.0...33.0
1000 s: (22.5...35.5)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DAF 11,6t32 Edition : 24.04.91

Replaces : -

Test oil : ISO-4113

Combination no. : 0 401 876 297U

Injection pump

Pump designation : PE6P110A320RS385-1U

EP type number : 0 411 816 146

Governor

Governor design. : RSV250...750P7A507

Governer no. : 0 421 833 185

Cust. part no. : 0290317

Customer-spec. information

Customer : DAF

Engine : DKA 1160(1500)

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - • : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.10...11.30

Del.quantity cm3/: 14.0...14.2

100 s: (13.8...14.5)

Spread cm3: 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0 Del.quantity cm3/: 2.5...3.3

100 s: (2.2...3.5)

Spread cm3: 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Del.quantity : 140.5...142.5

1000 : (138.0...145.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control Lever

position degrees: 90...98

Testing:

1st rack travel in: 10.10

Speed rpm : 750...755 2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

CO7

LOW IDLE 1 Control lever

position degrees: 65...73

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.9
Speed rpm : 250
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 rpm : 750...795 Speed

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.80...7.00
Del.quantity cm3/ : 25.0...33.0
1000 s: (22.5...35.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DAF 11,6t23 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 297Y

Injection pump

Pump designation : PE6P110A320RS385-1Y

EP type number : 0 411 816 146

Governor

Governor design. : RSV250...750P7A507

Governer no. : 0 421 833 185

Cust. part no. : 0290321

Customer-spec. information Customer : DAF

Engine : DKTD 1160(1500)

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.80...12.00

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed

Rack travel in mm : 6.8...7.0 Del.quantity cm3/ : 2.5...3.3 100 s: (2.2...3.5)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 152.0...154.0 Del.quantity 1000 : (149.5...156.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.80

rpm : 750...755 Speed

2nd rack travel in: 4.00

rpm : 780...795 Speed

4th rack travel in: 950

: 0.30...1.40 Speed man

009

LOW IDLE 1

Control Lever position degrees: 66...74

Setting point w/out bumper spring

: 250 Speed rpm Rack travel in mm: 6.9

Rack travel in mm : 250
Rack travel in mm : 6.80...7.00
Rack travel in mm : 2.00
rpm : 265...325

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80 Speed rpm : 750...755 Speed

LOW IDLE

Speed rpm : 250

Rack travel in mm: 6.80...7.00

Del.quantity cm3/: 25.0...33.0

1000 s: (22.5...35.5)

Spread cm3: 4.50

1000 s: (7.50)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DAF 11,6t34 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 2987

Injection pump

Pump designation : PE6P120A320RS385-2Z

: 0 411 826 132 EP type number

Governor

Governor design. : RSV250...750P7A507

Governer no. : 0 421 833 185

Cust. part no. : 0387874

Customer-spec. information Customer : DAF

Engine : DKX1160ATi(1500)

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 20.7...20.9

100 s: (20.4...21.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 250.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 207.5...209.5 Del.quantity 1000 : (204.5...212.5)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 9.50

rpm : 750...755 Speed

2nd rack travel in: 4.00

rpm : 780...795 Speed 4th rack travel in: 950 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 63...71 Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 5.0 rpm : 250 Speed

Rack travel in mm: 4.90...5.10

Rack travel in mm : 2.00

: 235...295 Speed rom

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50 Speed rpm : 750...755

LOW IDLE

Speed rpm : 250 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : DAF 11,8 u8 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 301z

Injection pump

Pump designation : PE6P110A720RS441Z EP type number : 0 411 816 148

Governor

Governor design. : RSV250...1200P5A509

Governer no. : 0 421 833 190

: 0395173 Cust. part no.

Customer-spec. information Customer : DAF

: DHS 825 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 0.7...1.2

100 s: (0.4...1.4)

cm3 : 0.4Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

. rpm : 1000 Speed

Aneroid pressure h: 700 Del.quantity

: 128.5...130.5 1000 : (126.0...133.0)

cm3 : 4.00 Spread 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.90

rpm : 1220...1230 Speed

2nd rack travel in: 4.00

: 1300...1330 Speed rpm

3rd rack travel in: 4.00

: 1330...1360 Speed rom

C13

4th rack travel in: 1500

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 4.6 Speed rpm

Rack travel in mm : 5.00...5.20 Rack travel in mm : 2.00

: 560...620 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 12.10...12.20 2nd speed rpm : 400

Rack travel in m: 12.10...12.30 3rd speed rpm : 300

Rack travel in m: 12.30...12.80

Aneroid/Altitude Compensator Test

1st version

Setting Speed

: 600 rpm hPa : 700

Pressure Rack travel mm : 11.90...12.00

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.30

2nd pressure hPa : 360 Rack travel in m: 11.40...11.50

3rd pressure hPa : 280

Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 86.5...88.5 1000 s: (84.0...91.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1220...1230

C14

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 245.0...285.0 1000 s: (241.0...289.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 7.0...12.0
1000 s: (4.5...14.5)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

Note remarks

: DAF 11,6 w2 Test sheet : 24.04.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 303W

Injection pump

Pump designation : PE6P100A320RS384-1W

EP type number : 0 411 806 189

Governor

Governor design. : RSV250...1100P5A510

: 0 421 833 191 Governer no.

Cust. part no. : 0763400

Customer-spec. information Customer

Engine : DK 1160 M

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 10.90...11.00

Del.guantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Testing:

1st rack travel in: 9.90

rpm : 1125...1135 Speed

2nd rack travel in: 4.00

rpm : 1175...1205 Speed

3rd rack travel in: 4.00

: 1260...1290 Speed rpm

4th rack travel in: 1400

rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 67...75 Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 6.8

Speed rpm : 250 Rack travel in mm : 7.20...7.40 Rack travel in mm : 2.00

Speed rpm : 700...760

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 10.90...11.00

2nd speed rpm : 400

Rack travel in m: 11.10...11.20

3rd speed rpm : 300

Rack travel in m: 11.30...11.80

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

rpm : 1125...1135 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 195.0...235.0

1000 s: (191.0...239.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed : 250 rpm

Rack travel in mm : 7.20...7.40

Del.quantity cm3/: 12.0...16.0

1000 s: (9.5...18.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Note remarks

Test sheet : DAF 11,6 w3 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 303x

Injection pump

Pump designation : PE6P100A320RS384-1X

EP type number : 0 411 806 189

Governor

: RSV250...1100P5A510 Governor design.

: 0 421 833 191 Governer no.

Cust. part no. : 0763399

Customer-spec. information Customer : DAF

Engine : DK 1160 M

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30 : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 10.30...10.40

Del.quantity cm3/: 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 90.0...92.0 1000 : (88.0...94.0)

Spread : 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 91...99

Testina:

1st rack travel in: 9.30

rpm : 1025...1035 Speed

2nd rack travel in: 4.00

rpm : 1075...1105 Speed

3rd rack travel in: 4.00

: 1160...1190 Speed rpm

4th rack travel in: 1300

rom : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 67...75 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm: 6.8
Speed rpm: 250
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00
Speed rpm: 700...760 TORQUE CONTROL Torque control curve - 1st version rpm : 850 1st speed Rack travel in m: 10.30...10.40 2nd speed rpm : 400 Rack travel in m: 10.50...10.60 3rd speed rpm : 300 Rack travel in m: 10.70...11.20 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.30 rom : 1025...1035 Speed STARTING FUEL DELIVERY Speed : 100 **LOW** Del.quantity cm3/: 195.0...235.0 1000 s: (191.0...239.0) Rack travel in mm : 19.50...21.00 LOW IDLE Remarks:

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Note remarks

: DAF 11,6k20 Test sheet : 24.04.91 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 308P

Injection pump

Pump designation : PE6P110A320RS372-1P

: 0 411 816 145 EP type number

Governor

: RSV250...1100P5A508-Governor design.

: 0 421 833 192 Governer no.

Cust. part no. : 0376298

Customer-spec. information

Customer : DAF

Engine : DKTD 1160 M

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 10.30...10.40

Del.quantity cm3/: 10.2...10.4

100 s: (9.9...10.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 7.0...7.2

Del.quantity cm3/: 0.9...1.4 100 s: (0.7...1.7)

cm3 : 0.4 Spread 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

: 102.0...104.0 Del.quantity 1000 : (99.5...106.5)

cm3 : 4.00

1000 : (7.50)

RATED SPEED

Spread

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 9.30

rpm : 1020...1030 Speed

2nd rack travel in: 4.00

rpm : 1070...1100 Speed

3rd rack travel in: 4.00

: 1145...1175 Speed rom

4th rack travel in: 1350 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: ?

Setting point w/out bumper spring Speed rpm : 250

rpm Rack travel in mm: 6.6 Speed rpm: 250 Rack travel in mm: 7.00...7.20

Rack travel in mm: 2.00 : 710...770 Speed rpm

TORQUE CONTROL Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 10.50...10.60

: 400 2nd speed rpm

Rack travel in m: 10.50...10.70

3rd speed rpm : 300

Rack travel in m: 10.80...11.30

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1020...1030

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 245.0...285.0

1000 s: (241.0...289.0)

Rack travel in mm: 19.50...21.00

LOW IDLE

Speed rpm : 250 Rack travel in mm : 7.00...7.20 Del.quantity cm3/ : 9.5...14.5 1000 s: (7.0...17.0)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

C20

Note remarks

Test sheet Edition : DAF 11,6k21 : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 308R

Injection pump

: PE6P110A320RS372-1R Pump designation

EP type number : 0 411 816 145

Governor

: RSV250...1100P5A508-Governor design.

: 0 421 833 192 Governer no.

Cust. part no. : 0376302

Customer-spec. information Customer : DAF

: DKTD 1160 M Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening .

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 11.7...11.9

100 s: (11.4...12.1)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 7.0...7.2 Del.quantity cm3/: 0.9...1.4

100 s: (0.7...1.7) Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

: 117.0...119.0 Del.quantity 1000 : (114.5...121.5)

: 4.00 cm3 Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 10.00

rpm : 1120...1130 Speed

2nd rack travel in: 4.00

: 1185...1215 Speed rpm

3rd rack travel in: 4.00

rpm : 1260...1290 Speed

4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: ? Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 6.6 Rack travel in mm : 2.00 Rack travel in mm : 2.00 Speed rom : 7.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 11.20...11.30

2nd speed rpm : 400

Rack travel in m: 11.20...11.40

3rd speed rpm : 300

Rack travel in m: 11.40...11.90 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rom : 1120...1130 Speed STARTING FUEL DELIVERY Speed rpm : 100
Del.quantity cm3/ : 245.0...285.0
1000 s: (241.0...289.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 7.00...7.20 Del.quantity cm3/: 9.5...14.5 1000 s: (7.0...17.0) cm3 : 4.50 Spread 1000 s: (7.50) Remarks:

Note remarks

: DAF 11,6k22 : 24.04.91 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 308T

Injection pump

Pump designation : PE6P110A320RS372-1T

: 0 411 816 145 EP type number

Governor

Governor design. : RSV250...1100P5A508-

Governer no. : 0 421 833 192

: 0369662 Cust. part no.

Customer-spec. information Customer : DAF

: DKT 1160 M Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 13.1...13.3

100 s: (12.8...13.5)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8 Del.quantity cm3/: 0.7...1.2 100 s: (0.4...1.4)

Spread

cm3 : 0.4 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del.quantity : 131.0...133.0

1000 : (128.5...135.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 10.70

rpm : 990...1000 Speed

2nd rack travel in: 4.00

rpm : 1050...1080 Speed

3rd rack travel in: 4.00

Speed rpm : 1125...1155 4th rack travel in: 1275

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 17...25 Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 6.2 : 250 Speed rpm

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00 Speed rom : 640...700

TORQUE CONTROL

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 11.90...12.00

rpm : 400 2nd speed

Rack travel in m: 11.90...12.10

3rd speed

rd speed rpm : 300 Rack travel in m: 12.10...12.60

Aneroid/Altitude Compensator Test

1st version Setting

: 600 Speed rpm: Pressure hPa : 700

: 11.70...11.80 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 11.40...11.50

2nd pressure hPa : 260

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Ameroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 135.0...137.0 1000 s: (132.5...139.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 990...1000 STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 7.0...12.0 1000 s: (4.5...14.5)

cm3 : 4.50 Spread 1000 s: (7.50)

Remarks:

C24

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : DAF 11,6k23 Test sheet Edition : 24.04.91 Replaces Test oil : ISO-4113 Combination no. : 0 401 876 **308**0 Injection pump Pump designation : PE6P110A320RS372-1U EP type number : 0 411 816 145 Governor Governor design. : RSV250...1100P5A508-: 0 421 833 192 Governer no. : 0369660 Cust. part no. Customer spec. information Customer : DAF Engine : DKA 1160 M TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 ٨ Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90

: (2.75...2.95) Rack travel in mm : 9.00...12.00

Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 850 1st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 13.8...14.0 100 s: (13.5...14.2) Spread cm3 : 0.4100 s: (0.7) rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 0.7...1.2 100 s: (0.4...1.4) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 4.25FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 850 : 138.0...140.0 Del.quantity 1000 : (135.5...142.5) Spread Cm3 : 4.00 1000 : (7.50)RATED SPEED 1st version Testing: 1st rack travel in: 11.10 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 : 1200...1230 Speed rpm 3rd rack travel in: 4.00 : 1275...1305 Speed rpm 4th rack travel in: 1425 : 0.30...1.40 Speed rom

: 1-5-3-6-2-4

Firing order

Prestroke mm

LOW IDLE 1 Control Lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm : 6.2 Speed rpm : 250

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00

Speed rpm : 640...700

TORQUE CONTROL

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 12.30...12.40

2nd speed rpm : 400

Rack travel in m: 12.30...12.50

: 300 3rd speed rpm

Rack travel in m: 12.50...13.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.10

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 245.0...285.0 1000 s: (241.0...289.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 7.0...12.0 1000 s: (4.5...14.5)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

C26

Note remarks

: DAF 11,6k24 Test sheet Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 308V

Injection pump

Pump designation : PE6P110A320RS372-1V

EP type number : 0 411 816 145

Governor

Governor design. : RSV250...1100P5A508-

: 0 421 833 192 Governer no.

: 0369659 Cust. part no.

Customer spec. information Customer : DAF

Engine : DKA 1160 M

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 13.2...13.4

100 s: (12.9...13.6)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm : 6.6...6.8

Del.quantity cm3/: 0.7...1.2

100 s: (0.4...1.4) cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm

Del.quantity 132.0...134.0 1000 : (129.5...136.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 10.80

Speed rpm: 990...1000 2nd rack travel in: 4.00

rpm : 1050...1080 Speed

3rd rack travel in: 4.00

rpm : 1125...1155 Speed

4th rack travel in: 1275 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 6.2 : 250 Speed rom Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00 Speed rpm : 640...700 TORQUE CONTROL Torque control curve - 1st version rpm : 850 1st speed Rack travel in m: 12.00...12.10 rpm : 400 2nd speed Rack travel in m: 12.00...12.20 3rd speed rpm : 300 Rack travel in m: 12.20...12.70 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.80 rpm : 990...1000 Speed STARTING FUEL DELIVERY Speed : 100 וווכןיו Del.quantity cm3/: 245.0...285.0 1000 s: (241.0...289.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250
Rack travel in mm : 6.60...6.80
Del.quantity cm3/ : 7.0...12.0 1000 s: (4.5...14.5) Spread cm3 : 4.501000 s: (7.50) Remarks:

Note remarks

Test sheet : DAF 11.6k25 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 308W

Injection pump

Pump designation : PE6P110A320RS372-1W

EP type number : 0 411 816 145

Governor

Governor design. : RSV250...1100P5A508-

3

Governer no. : 0 421 833 192

Cust. part no. : 0369658

Customer—spec. information Customer : DAF

Engine : DK 1160 M

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)
Rack travel in mm : 9.00...12.00

D01

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 10.4...10.6

100 s: (10.2...10.9)

Spread cm3: 0.4

100 s: (0.7)

2nd speed rpm : 250.0
Rack travel in mm : 6.6...6.8
Del.quantity cm3/: 0.7...1.2

100 s: (0.4...1.4)

Spread cm3 : 0.4 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3
Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 850

Del.quantity : 104.5...106.5 1000 : (102.0...109.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 9.50

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1050...1080

3rd rack travel in: 4.00

Speed rpm : 1125...1155

4th rack travel in: 1275 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 6.2 Speed rpm : 250 Rack travel in mm : 6.60...6.80 Rack travel in mm : 2.00 : 640...700 Speed COM TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 850 Rack travel in m: 10.70...10.80 2nd speed rpm : 400 Rack travel in m: 10.70...10.90

3rd speed rpm : 300

Rack travel in m: 10.90...11.40 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.50 Speed rom : 990...1000 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 245.0...285.0 1000 s: (241.0...289.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 250 Rack travel in mm : 6.60...6.80 Del.quantity cm3/ : 7.0...12.0 1000 s: (4.5...14.5) cm3 : 4.50Spread 1000 s: (7.50) Remarks:

Note remarks

Test sheet : DAF 11,6k26 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 308Y

Injection pump

Pump designation : PE6P110A320RS372-1Y

EP type number : 0 411 816 145

Governor

Governor design. : RSV250...1100P5A508-

: 0 421 833 192 Governer no.

Cust. part no. : 0290286

Customer-spec. information Customer : DAF

Engine : DKA 1160

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Phasing

: 0-60-120-180-240-300

: 1-5-3-6-2-4

Tolerance + - °

Firing order

: 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.9)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 0.7...1.2

100 s: (0.4...1.4)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

: 114.5...116.5 Del.quantity 1000 : (112.0...119.0)

cm3 : 4.00

Spread

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: ? *

Testing:

1st rack travel in: 10.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

3rd rack travel in: 4.00

rpm : 1275...1305 Speed

003

4th rack travel in: 1380

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6.2 rpm : 250 Speed

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00 Speed : 640...700 rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 11.30...11.40 2nd speed rpm : 400

Rack travel in m: 11.30...11.50 3rd speed rpm : 300 Rack travel in m: 11.50...12.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 245.0...285.0 1000 s: (241.0...289.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 7.0...12.0 1000 s: (4.5...14.5)

cm3 : 4.50Spread

1000 s: (7.50)

Remarks:

Note remarks

: MB 11,0 z Test sheet Edition : 24.04.91 Replaces : 17.9.90 Test oil : ISO-4113

Combination no. : 0 401 876 775

Injection pump

Pump designation: PE6P110A320LS3835-3

EP type number : 0 411 816 773

Governor

Governor design. : RSV350...1050P0A531-

: 0 421 833 343 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 441

1st version kW : 160.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1030

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 13.8...14.0

100 s: (13.5...14.2)

cm3 : 0.4Spread

100 s: (0.8)

rpm : 350.02nd speed

Rack travel in mm : 8.3...8.9 Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.4 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm : 1030

Del.quantity : 138.0...140.0 1000 : (135.5...142.5)

: 4.00 Spread cm3

1000 : (8,00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Testing:

005

1st rack travel in: 12.60 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 8.6 Testing: rpm : 100 Speed Minimum rack trave: 19.50
Speed rpm: 350
Rack travel in mm: 8.30...8.90
Rack travel in mm: 2.00
Speed rpm: 380...440 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 750 Speed Del.quantity cm3/: 126.0...130.0 1000 s: (123.0...133.0) Spread cm3 : 6.001000 s: (8.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.60 Speed rpm : 1070...1080 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...160.0 1000 s: (136.0...164.0) Remarks: Observe VDT-I-420/120

Note remarks

: RVI 9,8 m : 24.04.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 046 344

Injection pump

Pump designation : PES6P120A320RS3277

EP type number : 0 412 026 747

Governor

Governor design. : RQV275...1050PA995

: 0 421 813 929 Governer no.

Customer—spec. information Customer : RVT

Engine : MIDR 06 20 45

1st version kW : 222.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 17.5...17.7

100 s: (17.2...18.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 4.8...5.2

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

: 1130 1st speed rom travel mm : 8.20...8.40 2nd speed : 275 rom

travel mm : 0.70...1.10

3rd speed : 500 rpm travel mm 3.50...4.10

750 4th speed man

5.30...5.70 travel mm 1450 5th speed

rpm travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

Del.quantity : 175.0...180.0)

cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control Lever position degrees: 296...304 Testing: 1st rack travel in: 8.80 rpm : 1125...1135 Speed 2nd rack travel in: 4.00 : 1190...1220 Speed MON 4th rack travel in: 1350 Speed rom : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 243...251 Testing: Speed mon Minimum rack trave: 6.70 : 275 Speed rom Rack travel in mm : 4.90...5.10 CONSTANT REGULATION rpm : 310...430 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm hPa : 1000 Pressure Rack travel mm : 9.80...9.90 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.20
2nd pressure hPa : 360
Rack travel in m: 9.20...9.30
3rd pressure hPa : 200 Rack travel in m: 8.40...8.60 START CUT-OUT

1/min: 195 (215)

: 1050

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1000

rpm

Del.quantity cm3/: 175.0...181.0 1000 s: (172.0...184.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 112.0...114.0 1000 s: (109.0...117.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.80 rpm : 1125...1135 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 130.0...160.0 1000 s: (126.0...164.0) LOW IDLE Speed rpm : 275 Rack travel in mm : -4.60...-5.00 Del.quantity cm3/: 14.0...20.0 1000 s: (11.0...23.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Speed

Speed

1st version

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : RVI 9,8 e : 24.04.91 Edition : 18.2.91 Replaces Test oil : ISO-4113 Combination no. : 0 402 046 784 Injection pump Pump designation : PES6P120A320RS3139 : 0 412 026 718 EP type number Governor Governor design. : RQV275...1000PA728-2 : 0 421 813 599 Governer no. Customer-spec. information Customer : RVI : MIDR 062045 E Engine : 236.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.50...3.60 Prestroke mm : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1000 Rack travel in mm : 11.20...11.30 Del.quantity cm3/: 16.0...16.2 100 s: (15.7...16.5) cm3 : 0.5Spread 100 s: (0.9) rpm : 275.02nd speed Rack travel in mm : 5.2...5.6 Del.quantity cm3/ : 3.2...3.6 100 s: (2.9...3.9) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 1st speed travel mm : 0.90...1.10 : 450 2nd speed **Lbu** 3.30...3.70 travel mm 3rd speed : 800 rpm : 5.60...6.00 travel mm 4th speed : 1000 rpm travel mm : 7.00...7.20 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1170 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed Aneroid pressure h: 1000 Del.quantity : 100.0...165.0) : 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 10.20

rpm : 1065...1075

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 64...72

Testing:

Speed rpm : 200 Minimum rack trave: 7.20

Speed rpm : 275 Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 230...320 Speed

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed rpm hPa : 1000 Pressure

Rack travel mm : 11.20...11.30

Measurement

Speed $1/\min : 500$

1st pressure hPa : -

Rack travel in m: 8.00...8.40

2nd pressure hPa : 320 Rack travel in m: 10.50...10.60

3rd pressure hPa : 160 Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min: 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

rpm : 600

Del.quantity cm3/: 182.5...188.5 1000 s: (179.5...191.5)

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 109.5...111.5 1000 s: (106.5...114.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1065...1075

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 155.0...185.0 1000 s: (151.0...189.0)

LOW IDLE

Speed rpm : 275 Rack travel in mm : -5.60...-6.00

Del.quantity cm3/: 32.0...36.0

1000 s: (29.0...39.0) cm3 : 8.00

1000 s: (12.00)

Remarks:

Spread

Start-of-delivery mark 9° cam angle

after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MB 11,7 a17 Edition : 26.04.91 Replaces

Test oil : ISO-4113

: 0 402 046 807 Combination no.

Injection pump

Pump designation : PES6P110A820LS3131 EP type number : 0 412 016 715

Governor

: RQV300...1100PA916 Governor design.

: 0 421 813 748 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 Engine

: 168.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm

: (4.25...4.45)

Rack travel in mm : 9.00...12.00 Firing order : 6-2-4-1-5-3

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 13.7...13.9

100 s: (13.4...14.1)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 300.0 Rack travel in mm : 7.6...7.8 Del.quantity cm3/ : 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.10...1.40 travel mm

rpm : 450 2nd speed

: 3.40...3.80 : 1150 travel mm

3rd speed rpm

: 7.90...8.30 : 1225 travel mm

4th speed rpm

: 9.10...9.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1160 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 137.0...139.0 Del.quantity

1000 : (134.5...141.5)

cm3 : 4.00Spread 1000 : (8.00) RATED SPEED 1st version Control Lever position degrees: 114...122 Testina: 1st rack travel in: 10.40 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1195...1225 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 85...93 Testing: Speed rpm : 200 Minimum rack trave: 9.20 Speed rpm : 300 Rack travel in mm : 7.60...7.80 CONSTANT REGULATION rpm : 300...500 Speed START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 113.0...116.0 1000 s: (110.0...119.0) Spread cm3 : 5.001000 s: (9.00) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1140...1150 Speed

Remarks:

STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0)

D12

Note remarks

: MTU 19,9 f Test sheet Edition : 26.4.91 Replaces

Test oil : ISO-4113

Combination no. : 0 402 436 030

Injection pump

Pump designation : PE6ZW150/410/3RS61/2

EP type number : 0 412 456 002

Governor

Governor design. : RQUV300...750ZWA31L

: 0 422 408 012 Governer no.

Customer-spec. information Customer : MTU

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 443 022 assembly

Openina .

pressure, bar : 172...175

Test lines : 1 680 750 027

Outside diameter x Wall thickness

x Length mm : 8,00X2,00X1500

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm: 18.00

Del.quantity cm3/: 57.7...58.7

100 s: (57.4...59.0)

Spread cm3 : 1.5

100 s: (2.2)

rpm : 600 2nd speed Rack travel in mm: 6.00

Del.quantity cm3/: 9.8...11.8

100 s: (9.5...12.1)

cm3 : 1.0 Spread

100 s: (1.5) rpm : 200 3rd speed

Rack travel in mm : 6.00 Del.quantity cm3/ : 1.6...3.6

100 s: (1.3...3.9)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position Degree: 82...88

rpm : 750

Rack travel in mm : 17.5...18.5

RATED SPEED

Speed

1st version

Setting point:

Speed rpm

Rack travel in mm: 18.0

Testing:

1st rack travel in: 17.00

Speed rpm : 750...770 2nd rack travel in: 5.00 Speed rpm : 785...815

4th rack travel in: 810

rpm : 0.00...3.00Speed

LOW IDLE 1

Control lever

position degrees: 15.5...22.5

Testing:

Speed rpm Minimum rack trave: 13.00 : 350 Speed rpm

Rack travel in mm : 4.70...4.90

Rack travel in mm: 3.80

Speed rpm : 380...420 Rack travel in mm : <0.01 Speed rpm : 540

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 17.00 Speed rpm : 755...765

Remarks:

Full-load delivery is set on engine according to engine test report.

Note remarks

: MB 11,0 t : 26.04.91 : 30.11.90 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

: RQ300/1050PA762-4 Governor design. Governer no. : 0 421 801 390

Customer-spec, information

Customer : MERCEDES-BENZ

Engine : 0M441 LA

1st version kW : 240.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2) cm3 : 0.6

Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

Del.quantity : 214.0...216.0 1000 : (211.0...219.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing: 1st rack travel in: 13.80 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1155...1185 Speed 4th rack travel in: 1300 Speed rpm : 0.06...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.9 Testing: Speed : 200 rpm Minimum rack trave: 7.90 : 300 Speed rpm Rack travel in mm : 5.60...6.20 Rack travel in mm : 2.00 Speed : 380...420 rom TORQUE CONTROL Dimension a mm : 0.30 rpm : 1050 2nd speed Rack travel in m: 14.80...15.00 3rd speed rpm : 800 Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 900 Pressure Rack travel mm : 13.90...14.10 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550
Rack travel in m: 12.70...12.90
3rd pressure hPa : 1050
Rack travel in m: 14.00...14.10 *
4th pressure hPa : 1150 Rack travel in m: 14.40...14.70 5th pressure hPa Rack travel in m: 9.50...9.80 START CUT-OUT

1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1450 rpm_ : 1050 Speed Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1450 Speed rpm Del.quantity cm3/: 237.0...241.0 1000 s: (234.0...244.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...222.0 1000 s: (196.0...226.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

Note remarks

Test sheet : MB 11,0 t 2 : 26.04.91 Edition : 19.3.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQV300...1050PA797-2

: D 421 813 614 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M441 LA Engine

1st version kW : 240.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2)

cm3 : 0.6

Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300: 1.20...1.40 travel mm

2nd speed : 600 rpm

travel mm : 4.90...5.10 3rd speed : 1075 rpm

travel mm : 7.40...7.60

4th speed : 1100 rpm

: 8.00...8.40 travel mm : 1150 5th speed

rpm

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 : 214.0...216.0 Del.quantity 1000 : (211.0...219.0) cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 121...129 Testina: 1st rack travel in: 13.80 rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 81...89 Testina: Speed : 200 rpm Minimum rack trave: 7.90 : 300 Speed rpm Rack travel in mm : 5.60...6.20 CONSTANT REGULATION Speed rpm : 300...450 TORQUE CONTROL Dimension a mm : 0.30 : 1050 2nd speed rpm Rack travel in m: 14.80...15.00 3rd speed rpm : 800 Rack travel in m: 15.00...15.20 th speed rpm : 700 4th speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 900 Pressure : 13.90...14.10 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.70...12.90

3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 * 4th pressure hPa : 1150 Rack travel in m: 14.40...14.70 5th pressure hPa : -Rack travel in m: 9.50...9.80 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1450 : 1050 Speed rpm Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1450 Speed rpm : 800 Del.quantity cm3/: 237.0...241.0 1000 s: (234.0...244.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 Speed mon Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 1095...1110 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 9,6 q : 03.05.91 Test sheet Edition : 14.12.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 915

Injection pump

Pump designation : PE6P12OA32OLS7836 : 0 412 626 840 EP type number

Governor

Governor design. : RQ300/1050PA972 : 0 421 801 542 Governer no.

Customer-spec, information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 200.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del.guantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.5...5.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 800

Del.quantity : 182.0...184.0

: (179.0...187.0) Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point: Speed rpm Rack travel in mm: 20.0

1st rack travel in: 12.10 Speed rpm : 1090...1105 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 Speed rom : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Speed Rack travel in mm : 5.6 Testing: Speed rpm Minimum rack trave: 7.50 rpm : 300 Rack travel in mm : 5.50...5.80 Rack travel in mm : 2.00 Speed rpm : 380...420 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rom hPa : 800 Pressure Rack travel : 12.40...12.60 m Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 12.20...12.40 2nd pressure hPa : 500 Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 * 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 10.00...10.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 1050 Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1400 Speed : 300 LIDIII Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0)

Testing:

Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) Spread cm3: 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.10 Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 9,6 r : 03.05.91 Test sheet Edition Replaces : 18.1.91 Test oil : ISO-4113

: 0 402 646 916 Combination no.

Injection pump

Pump designation : PE6P120A320LS7836 EP type number : 0 412 626 840

Governor

: RQV300...1050PA797~ Governor design.

Governer no. : 0 421 813 884

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA Engine

: 200.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5,65) Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.4...5.9

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed 300 rpm :

1.00...1.50 travel mm

2nd speed rpm 600 4.80...5.30 travel mm

3rd speed 820 rom

5.90...6.40 travel mm

1107 4th speed rpm

: 8.30...8.80 travel mm

7183 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1125 Speed

Rack travel in mm : 15.20...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 800 Del.quantity : 182.0...187.0) : 5.00 cm3 Spread : (9.00) 1000 RATED SPEED 1st version Control lever position degrees: 118...126 Testina: 1st rack travel in: 12.10 : 1090...1100 Speed rpm 2nd rack travel in: 4.00 : 1165...1195 Speed rpm 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed rpm: 200 Minimum rack trave: 7.60 Speed rpm : 300 Rack travel in mm : 5.40...5.90 CONSTANT REGULATION rom : 300...500 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 800 Pressure : 12.40...12.60 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.20...10.40 2nd pressure hPa : 500 Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 * 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10

START CUT-OUT Speed 1/min : 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 : 1050 Speed rpm Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1400 : 800 Speed rpm Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rom Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 1090...1100 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

5th pressure hPa : -

Rack travel in m: 10.00...10.30

Note remarks

: MB 9,6 o : 24.04.91 Test sheet Edition Replaces : 23.11.90 Test oil : ISO-4113

Combination no. : 0 402 646 917

Injection pump

Pump designation : PE6P120A320LS7834 EP type number : 0 412 626 841

Governor

Governor design. : RQ300/950PA971 : 0 421 801 543 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 230.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.50...14.70

Del.quantity cm3/: 22.7...22.9

100 s: (22.4...23.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.3...6.9

Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

rpm : 600 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Aneroid Deliquantity
1000 : 227.0...229.0 : (224.0...232.0) : 5.00

cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm Rack travel in mm : 20.0

Testina: 1st rack travel in: 13.90 rrom : 990...1005 Speed 2nd rack travel in: 4.00 rom : 1065...1095 Speed 4th rack travel in: 1200 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.6 Testina: Speed rpm : 200 Minimum rack trave: 8.50 : 300 Speed rpm Rack travel in mm : 6.30...6.90 Rack travel in mm : 2.00 : 380...420 Speed rpm TORQUE CONTROL Dimension a mm : 0.35 : 950 2nd speed rom Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 1100 Rack travel mm : 14.50...14.70 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 700 Rack travel in m: 13.20...13.40 3rd pressure hPa : 1400 Rack travel in m: 14.60...14.80 * 4th pressure hPa : 1550 Rack travel in m: 14.90...15.10 5th pressure hPa : -Rack travel in m: 9.70...10.00

FUEL DELIVERY CHARACTERISTICS

rpm : 950

Aneroid pressure h: 1800

Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1800 Speed rpm : 800 Del.quantity cm3/ : 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) Spread cm3 : 8.001000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

1st version

Note remarks

: MB 9,6 p : 24.04.91 : 7.1.91 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 646 924

Injection pump

Pump designation : PE6P12OA32OLS7837 EP type number : 0 412 626 842

Governor

Governor design. : RQ300/950PA971-3 Governer no. : 0 421 801 557

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

1st version kW : 250.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 14.70...14.90

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000 Del.quantity

: 233.0...235.0 1000 : (230.0...238.0) cm3 : 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm : 600 Rack travel in mm : 20.0 Testina:

1st rack travel in: 14.50

rpm : 990...1005 Speed

2nd rack travel in: 4.00

Speed rpm : 1065...1095

4th rack travel in: 1200

Speed rom : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.9

Testina:

Speed rom Minimum rack trave: 7.90

: 300 Speed mom .

Rack travel in mm: 5.60...6.20 Rack travel in mm: 2.00 Speed rpm: 380...420

TORQUE CONTROL

: 0.40 Dimension a mm 2nd speed

nd speed rpm : 950 Rack travel in m: 15.50...15.70

rpm : 800 3rd speed

Rack travel in m: 15.60...15.80

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rom Pressure hPa : 1000

Rack travel mm : 14.70...14.90

Measurement

1/min: 600 Speed

1st pressure hPa : 200

Rack travel in m: 10.00...10.20

2nd pressure hPa : 600
Rack travel in m: 13.50...13.70
3rd pressure hPa : 1250
Rack travel in m: 14.80...15.00 *
4th pressure hPa : 1450

Rack travel in m: 15.40...15.60

5th pressure hPa : -

Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

Speed rpm : 950 Del.quantity cm3/: 251.0...254.0 1000 s: (248.0...257.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1800

Speed rpm : 800 Del.quantity cm3/ : 250.0...254.0 1000 s: (247.0...257.0)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 135.0...137.0 1000 s: (132.0...140.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.50

Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 9,6 o 1 : 24.04.91 : 27.2.91 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 646 926

Injection pump

Pump designation : PE6P12DA32DLS7834 EP type number : 0 412 626 841

Governor

Governor design. : RQV300...950PA797-19

: 0 421 813 901 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M401 LA

: 230.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm : (5.45...5.65)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 6.3...6.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm 1.00...1.50

2nd speed 617 rpm

5.00...5.50 travel mm 3rd speed : 780 man

travel mm

6.10...6.60 : 1009 4th speed MOR

travel mm

8.30...8.80

5th speed : 1092 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

D27

1st version Speed mom : 600 Aneroid pressure h: 1100 Del.quantity : 229.0...231.0 1000 : (226.0...234.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 118...126 Testing: 1st rack travel in: 13.90 rpm : 990...1000 Speed 2nd rack travel in: 4.00 : 1090...1120 Speed COM 4th rack travel in: 1200 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 82...90 Testing: Speed : 200 COM Minimum rack trave: 8.50 rpm : 300 Rack travel in mm : 6.50...7.10 CONSTANT REGULATION Speed rpm : 300...500 TORQUE CONTROL nd speed rpm : 950 Rack travel in m: 14.90...15.10 2nd speed rpm 3rd speed rpm : 800 Rack travel in m: 15.30...15.50 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm Pressure hPa : 1100 Rack travel mm : 14.50...14.70 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 700 Rack travel in m: 13.20...13.40

3rd pressure hPa : 1400

Rack travel in m: 14.60...14.80 *

4th pressure hPa : 1550 Rack travel in m: 14.90...15.10 5th pressure hPa : -Rack travel in m: 9.70...10.00 START CUT-OUT Speed 1/min: 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 Speed rpm : 950 Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rom Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 Speed rom : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 9,6 o 3 : 26.04.91 Edition Replaces : 1.3.91

Test oil : ISO-4113

: 0 402 646 929 Combination no.

Injection pump

Pump designation : PE6P120A320LS7834 EP type number : 0 412 626 841

Governor

Governor design. : RQV300...1050PA797-

: 0 421 813 924 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 230.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

~ Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firina order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 6.5...7.1 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.50 travel mm

2nd speed rpm : 608

: 4.80...5.30 travel mm

3rd speed 820 mogn

: 5.90...6.40 : 1108 travel mm

4th speed rpm

travel mm : 8.30...8.80

: 1183 5th speed rpm

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1085

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

3rd pressure hPa : 1400 Rack travel in m: 14.90...15.00 1st version rpm : 600 4th pressure hPa : 1550 Speed Aneroid pressure h: 1100 Rack travel in m: 15.10...15.30 Del.quantity : 229.0...231.0 5th pressure hPa : 1000 : (226.0...234.0) Rack travel in m: 9.70..10.00 cm3 : 5.00 Spread 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 240 (260) Speed 1st version FUEL DELIVERY CHARACTERISTICS Control lever position degrees: 120...128 1st version Testina: Aneroid pressure h: 1800 1st rack travel in: 13.90 rpm : 1050 Speed Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0) rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1190...1220 cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 4th rack travel in: 1300 rpm : 0.00...1.00 Speed : 800 Speed rpm Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) LOW IDLE 1 Control lever cm3 : 8.00 position degrees: 87...92 Spread 1000 s: (12.0) Testing: Aneroid pressure h: -Speed : 200 mars Speed rpm Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) Minimum rack trave: 8.70 : 300 rpm Speed Rack travel in mm : 6.50...7.10 cm3 : 8.00 Spread 1000 s: (12.0) CONSTANT REGULATION rpm : 300...450 Speed BREAKAWAY TORQUE CONTROL Dimension a mm : 0.40 1st version rpm : 1050 2nd speed 1mm rack travel less than Rack travel in m: 14.90...15.10 : 800 3rd speed rpm full load rack tr: 13.90 Rack travel in m: 15.30...15.50 rpm : 1090...1100 Speed Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0) 1st version Setting : 600 Speed rpm hPa : 1100 Pressure Remarks: Rack travel mm : 14.70...14.90 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.90...11.10 2nd pressure hPa : 700 Rack travel in m: 13.40...13.60

Note remarks

: MB 9,6 o 4 : 26.04.91 Test sheet Edition Replaces : 19.3.91 Test oil : ISO-4113

: 0 402 646 930 Combination no.

Injection pump

Pump designation : PE6P120A320LS7834 EP type number : 0 412 626 841

Governor

Governor design. : RQ300/1050PA972-7 : 0 421 801 583 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 230.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65) Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...7.1

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 1100

: 229.0...231.0 Del.quantity

1000 : (226.0...234.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point: rom Rack travel in mm : 20.0

Testing: 1st rack travel in: 13.90 rpm : 1090...1105 Speed 2nd Pack travel in: 4.00 rpm : 1180...1210 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rpm Rack travel in mm: 6.8 Testing: Speed rpm : 200 Minimum rack trave: 8.70 : 300 nom Rack travel in mm : 6.50...7.10 Rack travel in mm : 2.00 : 380...420 Speed rpm TORQUE CONTROL Dimension a mm : 1050 2nd speed rpm Rack travel in m: 14.90...15.10 : 800 3rd speed rpm Rack travel in m: 15.30...15.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man Pressure hPa : 1100 Rack travel mm : 14.70...14.90 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.90...11.10 2nd pressure hPa : 700 Rack travel in m: 13.40...13.60 3rd pressure hPa : 1400 Rack travel in m: 14.80...15.00 * 4th pressure hPa : 1550 Rack travel in m: 15.10...15.30 5th pressure hPa : -Rack travel in m: 9.70...10.00 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 Speed : 800 rpm Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 122.0...124.0 1000 s: (119.0...127.0) Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

1st version

Aneroid pressure h: 1800

rpm

: 1050

Note remarks

Test sheet : MB 11,1 b 1 Edition : 24.04.91 : 27.2.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 931

Injection pump

Pump designation : PE6P120A320LS7837 EP type number : 0 412 626 842

Governor

Governor design. : RQV300...1050PA797-

: 0 421 813 911 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M/441 LA Engine

: 250.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm 1.00...1.50

2nd speed 608 rpm

travel mm 4.80...5.30

3rd speed : 820 rpm

travel mm : 5.90...6.40

: 1108 4th speed rpm

: 8.30...8.80 travel mm

: 1280 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 1000 234.0...236.0 1000 : (231.0...239.0) Del.quantity cm3 : 5.00 1000 : (9.00) Spread RATED SPEED 1st version Control Lever position degrees: 118...126 Testina: 1st rack travel in: 13.90 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1165...1195 4th rack travel in: 1300 Speed Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 81...89 Testing: Speed man. Minimum rack trave: 7.70 : 300 rpm Rack travel in mm : 5.60...6.20 CONSTANT REGULATION rpm : 300...550 Speed TORQUE CONTROL Dimension a mm : 0.60 : 1050 2nd speed rpm Rack travel in m: 14.90...15.10 : 800 3rd speed rpm Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 1000 : 14.70...14.90 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600

Rack travel in m: 13.50...13.70

3rd pressure hPa : 1250 Rack travel in m: 14.80...15.00 * 4th pressure hPa : 1400 Rack travel in m: 15.30...15.50 5th pressure hPa : -Rack travel in m: 9.30...9.50 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 : 1050 Speed rpm Del.quantity cm3/: 235.0...238.0 1000 s: (232.0...241.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1800 Speed rpm : 800 Del.quantity cm3/ : 248.0...252.0 1000 s: (245.0...255.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 135.0...137.0 1000 s: (132.0...140.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 1090...1105 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: DAF 8,7 a : 03.05.91 Test sheet Edition : 1.3.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 932

Injection pump

Pump designation : PE6P120A320RS7228 EP type number : 0 412 626 845

Governor

Governor design. : RQV275...1150PA986

Governer no. : 0 421 813 920

Customer-spec. information Customer : DAF

: RS 222 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm: 14.20...15.20

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70 & maximum rack tra: 14.2...15.2 Difference ° CS : 3.25...4.75

BASIC SETTING

rom: 1000 1st speed

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 17.7...17.9

100 s: (17.4...18.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm : 6.6...6.8 Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

: 1.20...1.60 travel mm : 315

2nd speed rpm

travel mm : 1.80...2.20 3rd speed : 1205 rpm

travel mm

: 8.10...8.50

4th speed : 1340 rpm

: 9.70...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

Del.quantity : 177.0...179.0 1000 : (174.0...182.0) Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 116...124

Testing:

1st rack travel in: 13.70 rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1320...1350

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 79...87

Testing:

Speed rpm : 100 Minimum rack trave: 7.10 : 275 Speed rpm

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rom : 315...365 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 600 Pressure hPa : 1000 Rack travel mm : 14.70...14.80

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 12.60...12.80

2nd pressure hPa : 470

Rack travel in m: 13.90...14.00 3rd pressure hPa : 350

Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.70

Speed rpm : 1190...1200

LOW IDLE

Speed rpm : 275
Rack travel in mm : 5.50...5.70

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: DAF 8,7 b : 03.05.91 Test sheet Edition : 22.3.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 933

Injection pump

Pump designation : PE6P120A320RS7228 EP type number : 0 412 626 845

Governor

Governor design. : RQ275/1150PA987 : 0 421 801 578 Governer no.

Customer-spec. information Customer : DAF

Engine : RS 222

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

: 8.00X2.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 14.20...15.20

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70 & maximum rack tra: 14.2...15.2 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 17.7...17.9

100 s: (17.4...18.2)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2) cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 550 Speed

Rack travel in mm: 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 177.0...179.0 1000 : (174.0...182.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550 Rack travel in mm : 16.0

Testing:

1st rack travel in: 13.70 Speed rpm : 1175...1190 2nd rack travel in: 4.00

Speed rpm : 1260...1290 4th rack travel in: 1450

rpm : 0.00...1.40Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 5.6

Testing:

Speed rpm : 100 Minimum rack trave: 7.10

Speed rpm : 275
Rack travel in mm : 5.50...5.70
Rack travel in mm : 2.00

: 330...370 Speed COM

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 15.00...15.10 2nd speed rpm : 1150 Rack travel in m: 14.90...15.10

Ameroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 600 hPa : 1000 Pressure

: 14.70...14.80 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 12.60...12.80

2nd pressure hPa : 470

Rack travel in m: 13.90...14.00

3rd pressure hPa : 350

Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 131.0...133.0

1000 s: (128.0...136.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.70

Speed rpm : 1175...1190

LOW IDLE

Speed rpm : 275 Rack travel in mm : 5.50...5.70

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : DAF 8,7 c
Edition : 03.05.91
Replaces : 18.2.91
Test oil : ISO-4113

Combination no. : 0 402 646 934

Injection pump

Pump designation : PE6P120A320RS7229 EP type number : 0 412 626 844

Governor

Governor design. : RQ275/1150PA987 Governor no. : 0 421 801 578

Customer—spec. information Customer : DAF

Engine : RS 200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 13.00...14.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70 & maximum rack tra: 13.0...14.0 Difference ° CS : 3.25...4.75

HASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 275.0 Rack travel in mm : 6.1...6.3 Del.quantity cm3/ : 1.3...1.9 100 s: (1.0...2.2)

Spread cm3: 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 550

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000 Aneroid pressure h: 1000

Del.quantity : 163.0...165.0 1000 : (160.0...168.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550 Rack travel in mm : 16.0 Testing:

1st rack travel in: 12.50 Speed rpm : 1185...1200 2nd rack travel in: 4.00

Speed rpm : 1270...1300

4th rack travel in: 1450

rpm : 0.00...1.00 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 275 Rack travel in mm: 5.6

Testing:

Speed rpm: 100
Minimum rack trave: 7.10
Speed rpm: 275
Rack travel in mm: 5.50...5.70
Rack travel in mm: 2.00
Speed rpm: 330...370

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 13.80...13.90

2nd speed rpm : 1150

Rack travel in m: 13.70...13.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed mon

hPa : 1000 Pressure

: 13.50...13.60 Rack travel mm

Measurement

1/min : 600 Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90 2nd pressure hPa : 180 Rack travel in m: 12.60...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 117.0...119.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.50

rpm : 1185...1200 Speed

LOW IDLE

Speed rpm : 275 Rack travel in mm : 5.50...5.70

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: DAF 8,7 d Test sheet : 03.05.91 Edition : 18.2.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 935

Injection pump

Pump designation : PE6P120A320RS7229 EP type number : 0 412 626 844

Governor

Governor design. : RQV275...1150PA986

: 0 421 813 920 Governer no.

Customer-spec. information Customer : DAF

Engine : RS 200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35) Rack travel in mm : 13.00...14.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70 & maximum rack tra: 13.0.. 14.0 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 16.3...16.5

100 s: (16.0...16.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

: 1.20...1.60 travel mm

rom : 315 2nd speed

: 1.80...2.20 travel mm

rpm : 1205 3rd speed

: 8.10...8.50 travel mm : 1340 4th speed

rpm

: 9.70...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000Aneroid pressure h: 1000

Del.quantity : 163.0...165.0 1000 : (160.0...168.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 12.50

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1305...1335

4th rack travel in: 1450

rpm : 0.00...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 79...87

Testing:

Speed : 100 rpm Minimum rack trave: 7.10

Speed rpm : 275
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

rpm : 315...365 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 600 Pressure hPa : 1000

Rack travel mm : 13.50...13.60

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 11.70...11.90 2nd pressure hPa : 180

Rack travel in m: 12.60...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/: 117.0...119.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

rpm : 1190...1200 Speed

LOW IDLE

Speed rpm : 275 Rack travel in mm : 5.50...5.70

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: DAF 11,7 n : 03.05.91 Test sheet Edition

: 19.3.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 936

Injection pump

Pump designation : PE6P120A320RS7230 EP type number : 0 412 626 843

Governor

Governor design. : RQV250...1000PA990K

Governer no. : 0 421 815 274

Customer-spec. information Customer : DAF

: WS 315 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 13.80...14.80

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 980

Rack travel in mm: 14.20...14.30

Del.quantity cm3/: 26.4...26.6

100 s: (26.1...26.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 250.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 1.30...1.70 travel mm

2nd speed rpm : 285 travel mm

: 2.10...2.50 3rd speed rpm : 1030

travel mm : 9.60...10.00 : 1145

4th speed rpm

: 11.20...11.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1070

Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 980 Speed Aneroid pressure h: 1500

Del.quantity : 264.0...266.0 1000 : (261.0...269.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 13.20 rpm : 1030...1040 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1275 rpm : 0.00...1.40Speed LOW IDLE 1 Control Lever position degrees: ? Testina: Speed rpm : 100 Minimum rack trave: 6.60 Speed : 250 ripin Rack travel in mm : 5.10...5.30 Rack travel in mm : 2.00 : 310...350 Speed rom TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 500 Rack travel in m: 13.00...13.10 2nd speed rpm : 750 Rack travel in m: 13.30...13.50 3rd speed rpm : 825 Rack travel in m: 13.80...14.00 4th speed rpm : 980 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 980 Speed rpm Pressure hPa : 1500 Rack travel mm : 14.20...14.30 Measurement 1/min: 980 Speed 1st pressure hPa : -Rack travel in m: 8.80...9.00 2nd pressure hPa : 600 Rack travel in m: 11.80...11.90 3rd pressure hPa : 330 Rack travel in m: 10.00...10.20 FUEL DELIVERY CHARACTERISTICS 1st version

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.20 Speed rpm : 1030...1040

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.10...5.30

Remarks:

Note remarks

: MB 9,6 r 1 : 03.05.91 Test sheet Edition : 1.3.91 Replaces : ISO-4113 Test oil

: 0 402 646 939 Combination no.

Injection pump

Pump designation : PE6P120A320LS7836 EP type number : 0 412 626 840

Governor

Governor design. : RQV300...950PA797-31

: 0 421 813 922 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA Engine

1st version kW : 200.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening (

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rom: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 5.2...5.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

1.00...1.50 travel mm rpm : 617

2nd speed

5.00...5.50 780 travel mm

3rd speed rom : travel mm

: 6.10...6.60 rpm : 1009 4th speed

: 8.30...8.80 travel mm

5th speed rpm : 1092

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1020 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

Speed rpm : 600 Aneroid pressure h: 850 Del.quantity : 182.0...184.0 1000 : (179.0...187.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED Speed 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 12.10 Speed : 990...1000 Speed rpm 2nd rack travel in: 4.00 rpm : 1075...1105 Speed Spread 4th rack travel in: 1200 rpm : 0.00...1.00Speed Speed LOW IDLE 1 Control lever position degrees: 82...90 Spread Testing: Speed rpm : 200 Minimum rack trave: 7.30 Speed Speed : 300 man Rack travel in mm : 5.20...5.80 Spread CONSTANT REGULATION rpm : 300...450 Speed BREAKAWAY TORQUE CONTROL Dimension a mm 1st version 2nd speed rom Rack travel in m: 13.10...13.30 3rd speed rpm : 800 Rack travel in m: 13.10...13.30 Speed Aneroid/Altitude Compensator Test Speed 1st version Setting : 600 Speed rpm hPa : 800 Pressure Remarks: : 12.40...12.50 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.20...10.40 2nd pressure hPa : 500 Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000

Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 10.00...10.30 START CUT-OUT 1/min : 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 : 950 rpm Del.quantity cm3/: 203.0...206.0 1000 s: (200.0...209.0) cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1400 rpm : 800 Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0) cm3 : 8.001000 s: (12.0) Aneroid pressure h: -: 500 rpm Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 1000 s: (12.0) 1mm rack travel less than full load rack tr: 12.10 rpm : 990...1000 STARTING FUEL DELIVERY rom Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

1st version

Note remarks

: MB 9,6 q 1 : 03.05.91 Test sheet Edition : 18.2.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 940

Injection pump

Pump designation : PE6P12OA32OLS7836 EP type number : 0 412 626 840

Governor

Governor design. : RQ300/950PA971-7 Governer no. : 0 421 801 580

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 200.0 1st version kW Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0.8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65) Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.3...5.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 800

Del.quantity : 182.0...187.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm : 20.0

Testing: 1st rack travel in: 12.10 Speed rpm: 990...1005 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rpm : 300 Rack travel in mm : 5.6 Testina: Speed rpm Minimum rack trave: 7.40 Speed rpm : 300
Rack travel in mm : 5.30...5.90
Rack travel in mm : 2.00
Speed rpm : 370...410 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 800 Rack travel mm : 12.40...12.60 Measurement 1/min: 600 Speed 1st pressure hPa : 250
Rack travel in m: 10.20...10.40
2nd pressure hPa : 500
Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 10.00...10.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 950 Del.quantity cm3/: 203.0...206.0 1000 s: (200.0...209.0) cm3 : 8.00 Spread

1000 s: (12.0)

: 800

1000 s: (199.0...209.0)

Aneroid pressure h: 1400

rpm Del.quantity cm3/: 202.0...206.0

cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 990...1005 Speed Remarks: •

Speed

Note remarks

Test sheet : MB 11,1 d Edition : 26.04.91 Replaces : 19.3.91 : ISO-4113 Test oil

Combination no. : 0 402 646 942

Injection pump

Pump designation : PE6P120A320LS7837

Governor

EP type number : 0 412 626 842

Governor design. : RQ300/1050PA993 : 0 421 801 581 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M441 LA

: 250.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 5.6...6.2

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6 Spread

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

: 234.0...236.0 Del.quantity 1000 : (231.0...239.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 13.90 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1145...1175 4th rack travel in: 1200 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm Rack travel in mm: 5.9 Testing: Speed rpm : 200 Minimum rack trave: 7.70 Speed rpm : 300
Rack travel in mm : 5.60...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420 TORQUE CONTROL Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1000 Pressure Rack travel mm : 14.70...14.90 Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1250 Rack travel in m: 14.80...15.00 * 4th pressure hPa : 1400 Rack travel in m: 15.30...15.50 5th pressure hPa : Rack travel in m: 9.30...9.50 START CUT-OUT Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1800 : 1050 Speed rpm Del.quantity cm3/: 235.0...238.0 1000 s: (232.0...241.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1800 Speed 800 **Libiu** Del.quantity cm3/: 248.0...252.0 1000 s: (245.0...255.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 135.0...137.0
1000 s: (132.0...140.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.90 Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

Note remarks

Test sheet : DAF 11.7 nî Edition : 03.05.91

Replaces :

Test oil : ISO-4113

Combination no. : 0 402 646 949

Injection pump

Pump designation : PE6P120A320RS7230Z

EP type number : 0 412 626 848

Governor

Governor design. : RQV250...1000PA990K

Governer no. : 0 421 815 274

Customer—spec. information Customer : DAF

Engine : WS 295 G

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening A : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10 : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 980

Rack travel in mm : 13.70...13.80

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

Spread cm3:0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.8...6.0
Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.30...1.70
2nd speed rpm : 285
 travel mm : 2.10...2.50
3rd speed rpm : 1030
 travel mm : 9.60...10.00

travel mm : 9.60...10.0 4th speed rpm : 1145

travel mm : 11.20...11.40

GUIDE SLEEVE POSITION Control-lever position

l-lever position 1- Degree: –1

Speed rpm: 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 980 Aneroid pressure h: 1500

Del.quantity : 254.0...256.0

1000 : (251.0...259.0)

Spread cm3 : 5.00 1000 : (9.00)

RATED SPEED

1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 12.70 rpm : 1030...1040 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1275 rpm : 0.00...1.40Speed LOW IDLE 1 Control lever position degrees: ? Testing: Speed : 100 rpm Minimum rack trave: 6.60 Speed rpm : 250
Rack travel in mm : 5.10...5.30
Rack travel in mm : 2.00
Speed rpm : 310...350 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 500
Rack travel in m: 12.10...12.20 nd speed rpm : 675 Rack travel in m: 12.60...12.70 2nd speed 3rd speed rpm : 800 Rack travel in m: 13.20...13.40 4th speed rpm : 980 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rom Pressure hPa : 1500 Rack travel mm : 13.70...13.80 Measurement 1/min: 980 Speed 1st pressure hPa : -Rack travel in m: 8.20...8.40 2nd pressure hPa : 530 Rack travel in m: 10.80...10.90 3rd pressure hPa : 290 Rack travel in m: 9.10...9.30 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1500 : 500 Speed rpm Del.quantity cm3/: 260.0...264.0 1000 s: (257.0...267.0) cm3: 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed Lbu Del.quantity cm3/: 143.0...145.0 1000 s: (140.0...148.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.70 rpm : 1030...1040 Speed

LOW IDLE

Speed rom

Rack travel in mm : 5.10...5.30

Remarks:

E24

1st version

Note remarks

Test sheet : MB 9,6 s : 03.05.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 950

Injection pump

Pump designation : PE6P120A320LS7837 EP type number : 0 412 626 842

Governor

: RQ300/950PA993-2 Governor design. : 0 421 801 590 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 250.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil : 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

(5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.6...6.2
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600Aneroid pressure h: 1000

Del.quantity : 233.0...235.0 1000 : (230.0...238.0)

: 5.00 cm3

Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point: : 600 Speed rpm Rack travel in mm : 20.0

Testing: 1st rack travel in: 14.50 rpm : 990...1005 Speed 2nd rack travel in: 4.00 Speed rpm : 1065...1095 4th rack travel in: 1200 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring **Libut** Rack travel in mm: 5.9 Testing: Speed rpm Minimum rack trave: 7.90 speed rpm : 300
Rack travel in mm : 5.60...6.20
Rack travel in mm : 2.00
Speed Speed : 380...420 rom . TORQUE CONTROL Dimension a mm : 0.40 2nd speed rpm : 950 Rack travel in m: 15.50...15.70 3rd speed rpm : 800 Rack travel in m: 15.60...15.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 1000 Pressure : 14.70...14.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1250 Rack travel in m: 14.80...15.00 * 4th pressure hPa : 1450 Rack travel in m: 15.40...15.60 5th pressure hPa : -Rack travel in m: 9.30...9.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800

rpm : 950

STARTING FUEL DELIVERY

full load rack tr: 14.50

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0)

9

rpm : 990...1005

Remarks:

Speed

Speed

Note remarks

Test sheet : MB 14,7 i 1 Edition : 26.04.91 Replaces : 1.7.88 : ISO-4113 Test oil

Combination no. : 0 402 648 846

Injection pump

Pump designation : PE8P120A320LS7815 EP type number : 0 412 628 827

Governor

Governor design. : RQV350...1050PA870-3

Governer no. : 0 421 813 700

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M442LA

: 368.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-

Phasina : 0-45-90-135-180-225-

270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm: 15.10...15.20

Del.quantity cm3/: 25.8...26.0

100 s: (25.5...26.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm : 5.2...5.7 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 350 1st speed

travel mm : 1.90...2.10

rpm : 700 2nd speed

travel mm : 4.10...4.50

rpm : 1100 3rd speed

travel mm : 7.60...8.00

4th speed : 1200 rpm

: 9.50...9.90 travel mm

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed nom : 1050 Aneroid pressure h: 1500 258.0...260.0 1000 : (255.0...263.0) Del.quantity : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 114...122 Testing: 1st rack travel in: 14.10 Speed rpm : 1090...1100 2nd rack travel in: 4.00 Speed rpm: 1190...1220 4th rack travel in: 1300 Speed : 0.00...1.00 rom: LOW IDLE 1 Control lever position degrees: 64...72 Testing: Speed rom : 200 Minimum rack trave: 7.70 rom Rack travel in mm : 5.20...5.40 CONSTANT REGULATION rpm : 350...600 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version rt speed rpm : 1050 Rack travel in m: 15.10...15.20 1st speed : 1000 2nd speed rpm Rack travel in m: 15.30...15.50 rpm : 930 3rd speed Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed COM Pressure hPa : 1000 Rack travel mm : 14.50...14.70 Measurement 1/min: 600 Speed 1st pressure hPa : 330 Rack travel in m: 10.20...10.40 2nd pressure hPa : 600

Rack travel in m: 13.10...13.30 3rd pressure hPa : 1260
Rack travel in m: 14.70...14.90
4th pressure hPa : 1400
Rack travel in m: 15.10...15.30 5th pressure hPa : -Rack travel in m: 8.80...9.10 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed : 600 rpm Del.quantity cm3/: 239.0...241.0 1000 s: (236.0...244.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed : 800 rpm Del.quantity cm3/: 266.0...269.0 1000 s: (263.0...272.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed nom : 1050 Del.quantity cm3/: 194.0...196.0 1000 s: (191.0...199.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.10 Speed rpm : 1090...1100 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 260.0...280.0 1000 s: (256.0...284.0) Remarks:

Note remarks

Test sheet : MB 14,7 k 1 Edition : 24.04.91 : 23.11.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 881

Injection pump

Pump designation : PE8P120A320LS7816 EP type number : 0 412 628 829

Governor

Governor design. : RQV300...950PA797-13

: 0 421 813 841 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 LA Engine

1st version kW : 353.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.60...14.80

Del.quantity cm3/: 25.4...25.6

100 s: (25.1...25.9)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Spread cm3: 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

1.10...1.40 travel mm

2nd speed rpm : 700

: 5.50...6.00 rpm : 1100 travel mm

3rd speed

: 8.30...8.80 travel mm

4th speed rpm : 1090

: 9.70...10.20 travel mm

rpm : 1190 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1000 Speed

Rack travel in mm : 16.20...18.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 1000 Del.quantity : 254.0...259.0) cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 120...128 Testina: 1st rack travel in: 14.20 rpm : 990...1000 2nd rack travel in: 4.00 Speed rpm : 1080...1110 4th rack travel in: 1150 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 82...90 Testing: Speed rpm Minimum rack trave: 7.80 Speed rom : 300 Rack travel in mm : 5.90...6.50 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 950 Rack travel in m: 15.20...15.40 3rd speed rpm : 800 Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting rpm : 600 hPa : 1000 Speed Pressure : 14.60...14.80 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 12.00...12.20 2nd pressure hPa : 700 Rack travel in m: 13.80...14.00

3rd pressure hPa : 1200 Rack travel in m: 14.80...15.00 4th pressure hPa : 1500 Rack travel in m: 15.50...15.70 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 950 Del.quantity cm3/ : 270.0...273.0 1000 s: (267.0...276.0) cm3 : 8.00 1000 s: (12.0) Coread Aneroid pressure h: 1600 Speed rpm : 800 Del.quantity cm3/ : 270.0...274.0 1000 s: (267.0...277.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) Spread cm3 : 8.001000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.20 rpm : 990...1000 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) Remarks:

Note remarks

Test sheet : MB 14,7 a22 Edition : 24.04.91 : 12.4.90 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 648 890

Injection pump

Pump designation : PE8P120A320LS7801

EP type number : 0 412 628 806

Governor

Governor design. : RQ300/950PA932-4

Governer no. : 0 421 801 533

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 A Engine

: 269.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35) Rack travel in mm : 20.00...21.00 8-7-2-6-3- 5firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 500

Rack travel in mm : 14.00...14.20

Del.guantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 800

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm : 20.0 Testing: 1st rack travel in: 11.90 Speed rpm : 990...1000 2nd rack travel in: 4.00 rpm : 1060...1090 Speed 4th rack travel in: 1200 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testina: Speed : 200 rpm Minimum rack trave: 8.00 : 300 rpm Rack travel in mm: 6.00...6.40 Rack travel in mm: 2.00 rpm : 380...420 Speed TORQUE CONTROL Dimension a mm : 0.75 nd speed rpm : 950 Rack travel in m: 12.90...13.10 2nd speed rpm 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 800 : 14.00...14.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 11.80...12.00 2nd pressure hPa : 500 Rack travel in m: 13.30...13.60 3rd pressure hPa : 950 Rack travel in m: 14.10...14.20 * 4th pressure hPa : -Rack travel in m: 10.60...11.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1150 Speed rpm : 950 Del.quantity cm3/: 190.0...193.0 1000 s: (187.0...196.0)

Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1150 : 750 Speed rpm Del.quantity cm3/: 216.0...219.0 1000 s: (213.0...222.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 990...1000

Remarks:

F₀4

Note remarks

Test sheet : MB 12,8 o
Edition : 26.04.91
Replaces : 15.11.90
Test oil : ISO-4113

Combination no. : 0 402 648 893

Injection pump

Pump designation : PE8P120A320LS7835 EP type number : 0 412 628 847

Governor

Governor design. : RQ300/950PA971-2

Governer no. : 0 421 801 548

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M402 A

1st version kW : 280.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

4-1

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.50 (0.75)

Time to and an a 0

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.20...14.40

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm: 300.0

Rack travel in mm: 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2

peed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.70 rpm : 990...1005 Speed 2nd rack travel in: 4.00 : 1070...1100 Speed rpm, 4th rack travel in: 1150 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring : 300 Speed rpm Rack travel in mm: 6.5 Testing: speed rpm : 200 Minimum rack trave: 7.80 **Lbw** : 300 Speed Rack travel in mm : 6.20...6.80 Rack travel in mm: 2.00 : 380...420 Speed MON TORQUE CONTROL Dimension a mm : 0.50 : 950 2nd speed rpm Rack travel in m: 13.70...13.90 3rd speed rpm : 800 Rack travel in m: 14.60...14.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed mq: Pressure hPa : 1000 : 14.20...14.40 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 9.40...9.60 2nd pressure hPa : 650 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1200 Rack travel in m: 14.30...14.50 * 4th pressure hPa : -Rack travel in m: 8.60...8.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 950 Del.quantity cm3/: 216.0...219.0 1000 s: (213.0...222.0)

cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 800 Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...241.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm : 500 3peed Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.70 Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

F06

Note remarks

: MB 12,8 o 1 : 26.04.91 : 23.11.90 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 648 894

Injection pump

Pump designation : PE8P120A320LS7835 EP type number : 0 412 628 847

Governor

Governor design. : RQV300...950PA797-18

: 0 421 813 886 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM402 A

: 280.0 1st version kW Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-4-1 5-3-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm : 600 1st speed

Rack travel in mm : 14.20...14.40

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 300.0Rack travel in mm: 6.2...6.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

300 1st speed rom 1.00...1.50 travel mm

567 2nd speed rom 4.40...4.90 travel mm

3rd speed : 780 rom

6.10...6.60 travel mm 4th speed : 1009

rpm travel mm : 8.30...8.80

5th speed : 1092 rpm

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 980 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 225.0...227.0
1000 : (222.0...230.0) Spread cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 122...130 Testina: 1st rack travel in: 12.70 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rom : 1070...1100 Speed 4th rack travel in: 1250 rom : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed rpm : 200 Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 6.20...6.80 CONSTANT REGULATION rpm : 250...360 Speed TORQUE CONTROL Dimension a mm : 0.50 nd speed rpm : 950 Rack travel in m: 13.70...13.90 2nd speed 3rd speed rpm : 800 Rack travel in m: 14.60...14.80 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm hPa : 1000 Pressure Rack travel mm : 14.20...14.40 Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 9.40...9.60 2nd pressure hPa : 650

Rack travel in m: 13.00...13.20

3rd pressure hPa : 1200 Rack travel in m: 14.30...14.50 * 4th pressure hPa : -Rack travel in m: 8.60...8.90 START CUT-OUT 1/min: 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 rpm : 950 Del.quantity cm3/: 216.0...219.0 1000 s: (213.0...222.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1500 Speed rpm Del.quantity cm3/: 234.0...238.0 1000 s: (231.0...241.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -**BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.70 Speed rpm : 990...1000 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 12,8 o 2 Test sheet : 26.04.91 : 27.2.91 Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 648 895

Injection pump

Pump designation : PE8P120A320LS7835 EP type number : 0 412 628 847

Governor

Governor design. : RQ300/1050PA972-1

Governer no.

: 0 421 801 545

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M402 A Engine

1st version kW : 280.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 : (5.45...5.65) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.80...15.00

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 6.2...6.8

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 600 Aneroid pressure h: 1000

225.0...227.0 1000 : (222.0...230.0) cm3 : 6.00 Del.quantity

Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.30 Speed rpm : 1090...1105 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1350 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testina: Speed rpm : 200 Minimum rack trave: 7.80 Speed rpm : 300
Rack travel in mm : 6.20...6.80
Rack travel in mm : 2.00 Speed rom : 380...420 TORQUE CONTROL : 0.50 Dimension a mm : 950 2nd speed rom Rack travel in m: 14.30...14.50 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 1000 : 14.80...15.00 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.00...10.20 2nd pressure hPa : 650 Rack travel in m: 13.60...13.80

3rd pressure hPa : 1200

Rack travel in m: 14.90...15.00 * 4th pressure hPa : Rack travel in m: 9.00...9.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500

rpm : 1050

Del.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 800 Del.quantity cm3/ : 232.0...236.0 1000 s: (229.0...239.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 122.0...124.0 1000 s: (119.0...127.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

ð

Speed

Note remarks

: MB 14,7 v 2 Test sheet : 26.04.91 : 27.2.91 Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 899

Injection pump

Pump designation : PE8P12OA320LS7839 EP type number : 0 412 628 849

Governor

Governor design. : RQ300/950PA971-5 Governer no. : 0 421 801 559

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442 LA

: 370.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow 1 4 1

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 : (4.95...5.15) Prestroke mm

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.10...14.30

Del.quantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.6 Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1050

: 252.0...254.0 Del.quantity

1000 : (249.0...257.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rom

Rack travel in mm: 20.0 Testina: 1st rack travel in: 14.70 rpm : 990...1005 Speed 2nd rack travel in: 4.00 : 1075...1105 Speed rpm 4th rack travel in: 1150 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed COM Rack travel in mm : 5.5 Testing: Speed : 200 rpm Minimum rack trave: 6.80 : 300 rpm Speed Rack travel in mm : 5.20...5.80 Rack travel in mm : 2.00 Speed man : 370...410 TORQUE CONTROL Dimension a mm : 950 2nd speed rom Rack travel in m: 15.70...15.90 : 800 3rd speed rpm Rack travel in m: 16.00...16.20 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 1050 Pressure Rack travel mm : 14.10...14.30 Measurement 1/min: 600 Speed 1st pressure hPa : 290 Rack travel in m: 8.70...8.90 2nd pressure hPa : 780 Rack travel in m: 13.20...13.40 3rd pressure hPa : 1200 Rack travel in m: 14.30...14.50 4th pressure hPa : 1380 Rack travel in m: 15.10...15.30 5th pressure hPa : -Rack travel in m: 8.40...8.70 FUEL DELIVERY CHARACTERISTICS 1st version

Del.quantity cm3/: 290.0...293.0 1000 s: (287.0...296.0) Spread : 8.00 cm3 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rpm Del.quantity cm3/: 295.0...299.0 1000 s: (292.0...302.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 139.0...141.0 1000 s: (136.0...144.0) Spread cm3 : 8.00 1005 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.70 Speed rpm : 990...1005

Remarks:

•

Speed

Ameroid pressure h: 1800

rom

: 950

Note remarks

: MB 14,7 u : 03.05.91 Test sheet Edition : 7.1.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 900

Injection pump

Pump designation : PE8P120A320LS7840 EP type number : 0 412 628 850

Governor

Governor design. : RQ300/1050PA972-4

Governer no. : 0 421 801 560

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 A

: 250.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.30...13.50

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 6.0...6.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 900

Del.quantity : 200.0...211.0)

Spread cm3 : 6.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

F13

Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.90 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1160...1190 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.5 Testina: Speed rom : 200 Minimum rack trave: 7.90 : 300 rpm Rack travel in mm : 6.20...6.80 Rack travel in mm: 2.00 : 380...420 Speed rpm TORQUE CONTROL Dimension a mm : 0.65 2nd speed rpm : 1050 Rack travel in m: 12.90...13.10 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 900 Rack travel mm : 13.30...13.50 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 650 Rack travel in m: 12.60...12.80

3rd pressure hPa : 1050

Rack travel in m: 13.40...13.50 *

4th pressure hPa : 1250 Rack travel in m: 14.00...14.20 5th pressure hPa : -Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500

rpm : 1050

Del.quantity cm3/: 194.0...197.0 1000 s: (191.0...200.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 : 800 Speed rpm Del.quantity cm3/: 220.0...224.0 1000 s: (217.0...227.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 123.0...125.0 1000 s: (120.0...128.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.90 Speed rpm : 1090...1105

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

F14

Speed

Note remarks

: MB 14.7 u 1 Test sheet : 03.05.91 Edition : 25.1.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 648 901

Injection pump

: PE8P120A320LS7840 Pump designation EP type number : 0 412 628 850

Governor

Governor design. : RQV300...1050PA797-

: 0 421 813 894 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442 A Engine

1st version kW : 250.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.30...13.50

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.0...6.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDEASLEEVE TRAVEL

1st speed rpm : 300

: 1.10...1.60 travel mm

2nd speed rpm : 470 travel mm

: 3.00...3.50 : 830 3rd speed man

: 5.90...6.40 travel mm

: 1110 4th speed rpm

: 8.20...8.70 travel mm

5th speed : 1183 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1125 Speed

Rack travel in mm : 15.20...17.80

Rack travel in m: 12.30...12.50 3rd pressure hPa : 1050 FULL LOAD DELIV. AT FULL LOAD STOP Rack travel in m: 13.60...13.70 *
4th pressure hPa : 1120
Rack travel in m: 14.10...14.30
5th pressure hPa : -1st version Speed rpm : 600 Aneroid pressure h: 900 Del.quantity : 206.0...208.0 1000 : (203.0...211.0) Rack travel in m: 10.40...10.70 Spread cm3 : 6.00 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min: 220 (240) 1st version FUEL DELIVERY CHARACTERISTICS Control lever position degrees: 116...124 1st version Testing: Aneroid pressure h: 1500 Speed rpm : 1050 Del.quantity cm3/: 194.0...197.0 1st rack travel in: 11.90 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 1000 s: (191.0...200.0) rpm : 1160...1190 cm3 : 8.00Speed Spread 4th rack travel in: 1300 1000 s: (12.0) rpm : 0.00...1.00 Aneroid pressure h: 1500 Speed : 800 Speed rpm Del.quantity cm3/: 220.0...224.0 LOW IDLE 1 1000 s: (217.0...227.0) Control Lever position degrees: 84...92 : 8.00 Spread cm3 1000 s: (12.0) Testina: Aneroid pressure h: rpm : 500 Speed : 200 rpm Speed Del.quantity cm3/: 123.0...125.0 Minimum rack trave: 7.90 rpm : 300 1000 s: (120.0...128.0) Rack travel in mm : 6.10...6.70 cm3 : 8.00 Spread 1000 s: (12.0) CONSTANT REGULATION Speed rpm : 300...450 **BREAKAWAY** TORQUE CONTROL Dimension a mm : 0.20 2nd speed rpm : 1050 Rack travel in m: 12.90...13.10 1st version 1mm rack travel less than 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 full load rack tr: 11.90 Speed rpm : 1090...1100 Aneroid/Altitude STARTING FUEL DELIVERY Compensator Test Speed rpm : 100 Del.quantity cm3/: 180.0...200.0 1st version 1000 s: (176.0...204.0) Setting Speed : 600 rom hPa : 800 Pressure Remarks: : 13.50...13.70 Rack travel mm Measurement * Increase in control-rod travel with 1/min: 600 Speed respect to setting at least 0.1 mm 1st pressure hPa : 440 Rack travel in m: 11.30...11.50

2nd pressure hPa : 550

Note remarks

: MB 14,7 V Test sheet : 24.04.91 Edition : 20.12.90 Replaces Test oil : ISO-4113

: 0 402 648 902 Combination no.

Injection pump

Pump designation: PE8P120A320LS7839 EP type number : 0 412 628 849 Governor

Governor design. : RQ300/1050PA972-5 : 0 421 801 564 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 LA

1st version kW : 370.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 20.00...21.00

Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.10...15.30

Del.quantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm : 6.2...6.8 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 100 s: (1.0) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm: 600 Rack travel in mm: 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1050 Del.quantity : 252.0...254.0 1000 : (249.0...257.0)

Spread

cm3 : 6.00 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm: 20.0 Testina: 1st rack travel in: 15.00 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1250 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.5 Testing: : 200 Speed rpm Minimum rack trave: 7.80 Speed : 300 rom Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 : 380...420 Speed rom TORQUE CONTROL Dimension a mm : 1050 2nd speed rpm Rack travel in m: 16.00...16.20 3rd speed rpm : 800 Rack travel in m: 16.80...17.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1050 Pressure : 15.10...15.30 Rack travel mm Measurement Speed 1/min : 600 1st pressure hPa : 290 Rack travel in m: 9.70...9.90 2nd pressure hPa : 780 Rack travel in m: 14.20...14.40 3rd pressure hPa : 1200 Rack travel in m: 15.20...15.40 *
4th pressure hPa : 1380
Rack travel in m: 16.10...16.30 5th pressure hPa : -Rack travel in m: 9.30...9.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800

: 1050

rpm

Del.quantity cm3/: 274.0...277.0 1000 s: (271.0...280.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1800 Speed rpm : 800 Del.quantity cm3/ : 295.0...299.0 1000 s: (292.0...302.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: Speed rpm : 500 Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) cm3 : 8.00Spread 1000 s: (12.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 15.00 rpm : 1090...1105 Speed

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

F18

Speed

Note remarks

Test sheet : MB 14,7 W : 26.04.91 Edition : 28.3.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 906

Injection pump

Pump designation : PE8P12OA32OLS7838 EP type number : 0 412 628 848

Governor

Governor design. : RQ300/1050PA972-6

: 0 421 801 569 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 A

1st version kW : 320.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00X2.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35) Rack travel in mm : 20.00...21.00

: 8-7-2-6-3-5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 14.10...14.30

Del.quantity cm3/: 22.9...23.1

100 s: (22.6...23.4)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm : 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 1020

Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

Del.quantity : 229.0...234.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 1020 rpm

F19

Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.50 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1250 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rom Rack travel in mm: 6.5 Testing: Speed : 200 rpm Minimum rack trave: 7.80 : 300 rpm Rack travel in mm : 6.20...6.80 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.50...14.70 3rd speed nom : 800 Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed man Pressure hPa : 1000 Rack travel mm : 14.10...14.30 Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 10.00...10.20 2nd pressure hPa : 700 Rack travel in m: 13.00...13.20 3rd pressure hPa : 1200 Rack travel in m: 14.30...14.50 4th pressure hPa : 1350 Rack travel in m: 14.70...14.90 5th pressure hPa : Rack travel in m: 9.20...9.40 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600

Speed : 1050 rpm Del.quantity cm3/: 226.0...229.0 1000 s: (223.0...232.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1600 Speed : 800 rpm Del.quantity cm3/: 239.0...243.0 1000 s: (236.0...246.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: Speed : 500 rpm Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 1090...1105

Remarks:

F20

Note remarks

: MB 14,7 v 1 : 26.04.91 Test sheet Edition : 16.1.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 907

Injection pump

Pump designation : PE8P120A320LS7839 EP type number : 0 412 628 849

Governor

Governor design. : RQV300...950PA797-22

: 0 421 813 909 Governer in.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 LA

: 370.0 1st version kW Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.10...15.30

Del.quantity cm3/: 25.2...25.4

100 s: (24.9...25.7)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm : 6.2...6.8 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5) cm3 : 0.6Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed travel mm : 1.00...1.50

2nd speed rpm : 617

travel mm : 5.00...5.50

3rd speed rpm : 780

travel mm : 6.10...6.60 : 1010 4th speed rpm

: 8.30...8.80 travel mm

5th speed rpm : 1092

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 1000 252.0...254.0 1000 : (249.0...257.0) Del.quantity cm3 : 6.00 1000 : (9.00) Spread RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 15.50 Speed rpm : 990...1000 2nd rack travel in: 4.00 Speed rpm : 1075...1105 4th rack travel in: 1150 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 82...90 Testing: Speed rpm : 200 Minimum rack trave: 7.80 Speed rpm : 300 Rack travel in mm : 6.20...6.80 CONSTANT REGULATION rpm : 300...500 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 1000 Rack travel mm : 15.10...15.30 Measurement 1/min: 600 Speed 1st pressure hPa : 296 Rack travel in m: 9.70...9.90 2nd pressure hPa : 760 Rack travel in m: 14.30...14.50 3rd pressure hPa : 1200 Rack travel in m: 15.30...15.50 4th pressure hPa : 1500

Rack travel in m: 16.10...16.30

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 Speed rpm : 950
Del.quantity cm3/ : 290.0...293.0
1000 s: (287.0...296.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1800 Speed rpm : 800 Del.quantity cm3/: 295.0...299.0 1000 s: (292.0...302.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 139.0...141.0 1000 s: (136.0...144.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 15.50 rpm : 990...1000 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 210.0...230.0 1000 s: (206.0...234.0) Remarks:

1/min: 240 (260)

Speed

START CUT-OUT

Note remarks

Test sheet : MB 14,7 w 1 Edition : 26.04.91 : 28.3.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 648 908

Injection pump

Pump designation : PE8P120A320LS7838 EP type number : 0 412 628 848

Governor

Governor design. : RQV300...950PA797-23

Governer no. : 0 421 813 910

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 A

1st version kW : 320.0 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

: 8- 7- 2- 6- 3- 5-4- 1 Firing order

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.80...14.00

Del.quantity cm3/: 22.3...22.5

100 s: (22.0...22.8)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300: 1.00...1.50 travel mm

2nd speed : 617 rpm 5.00...5.50 travel mm

3rd speed : 780 nom

: 6.10...6.60 travel mm 4th speed : 1009 rpm

: 8.30...8.80 travel mm 1092 5th speed

rpm : 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Speed

Degree: -1 rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 900 : 223.0...225.0 1000 : (220.0...228.0) Del.quantity cm3: 6.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 120...128 Testing: 1st rack travel in: 13.50 rpm : 990...1000 Speed 2nd rack travel in: 4.00 Speed rpm : 1080...1110 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: speed rpm : 200 Minimum rack trave: 7.80 : 300° Speed rpm Rack travel in mm : 6.20...6.80 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 0.70 : 950 2nd speed rpm Rack travel in m: 14.50...14.70 rpm : 800 3rd speed Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 900 Pressure : 13.80...14.00 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 9.80...10.00

2nd pressure hPa : 650 Rack travel in m: 12.80...13.00

Rack travel in m: 13.90...14.10 * 4th pressure hPa : 1350 Rack travel in m: 14.80...15.00 5th pressure hPa : Rack travel in m: 9.30...9.50 START CUT-OUT 1/min : 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 950
Del.quantity cm3/ : 234.0...237.0
1000 s: (231.0...240.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1600 : 800 Speed rpm Del.quantity cm3/: 243.0...247.0 1000 s: (240.0...250.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 138.0...140.0 1000 s: (135.0...143.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 990...1000 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

3rd pressure hPa : 1100

Note remarks

: MB 14,7 u 2 : 03.05.91 : 22.3.91 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 648 909

Injection pump

Pump designation : PE8P120A320LS7840 EP type number : 0 412 628 850

Governor

Governor design. : RQ300/950PA971-6 Governer no. : 0 421 801 575

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442 A

: 250.0 1st version kW Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rom : 600

Rack travel in mm : 13.30...13.50

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

: 206.0...208.0 Del.quantity 1000 : (203.0...211.0)

: 6.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm

Rack travel in mm: 20.0 Testing: 1st rack travel in: 12.40 Speed rpm : 990...1005 2nd rack travel in: 4.00 Speed rpm : 1070...1100 4th rack travel in: 1150 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.5 Testing: rpm : 200 Speed Minimum rack trave: 7.60 Speed rpm : 300 Rack travel in mm : 6.20...6.80 Rack travel in mm: 2.00 Speed rpm : 380...420 TORQUE CONTROL Dimension a mm : ? 2nd speed rpm : 950 Rack travel in m: 13.40...13.60 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600 Pressure hPa : 900 Rack travel mm : 13.30...13.50 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 650 Rack travel in m: 12.60...12.80

3rd pressure hPa : 1050
Rack travel in m: 13.40...13.60 * 4th pressure hPa : 1250 Rack travel in m: 14.00...14.20 5th pressure hPa : -Rack travel in m: 10.60...10.80 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 204.0...207.0

1000 s: (201.0...210.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: 1500

Speed rpm : 800

Del.quantity cm3/: 220.0...224.0

1000 s: (217.0...227.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h:
Speed rpm : 500

Del.quantity cm3/: 123.0...125.0

1000 s: (120.0...128.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40 Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

F26

Speed

1st version

Aneroid pressure h: 1500

rpm : 950

Note remarks

: MB 14,7 u 3 : 03.05.91 Test sheet Edition Replaces : 1.3.91 Test oil : ISO-4113

Combination no. : 0 402 648 910

Injection pump

Pump designation : PE8P120A320LS7840 EP type number : 0 412 628 850

Governor

Governor design. : RQV300...950PA797-26

: 0 421 813 915 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442 A Engine

: 250.0 1st version kW : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.30...13.50

Del.quantity cm3/: 20.6...20.8

100 s: (20.3...21.1)

cm3 : 0.6Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.50 travel mm

2nd speed rpm : 617 travel mm

: 5.00...5.50 rpm : 780 3rd speed

travel mm

: 6.10...6.60

rpm : 1009 4th speed : 8.30...8.80 travel mm

5th speed rpm : 1092

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1020 Speed Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600 Aneroid pressure h: 900 : 206.0...208.0 Del.quantity 1000 : (203.0...211.0) Spread cm3 : 6.00 cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testina: 1st rack travel in: 12.40 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rom : 1070...1100 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 82...90 Testing: Speed rpm Minimum rack trave: 7.60 rpm : 300 Speed Rack travel in mm : 6.20...6.80 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.80 2nd speed rpm : 950 Rack travel in m: 13.40...13.60 3rd speed rpm : 800 Rack travel in m: 14.20...14.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 900 Pressure : 13.30...13.50 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 11.10...11.30 2nd pressure hPa : 650 Rack travel in m: 12.60...12.80

3rd pressure hPa : 1050 Rack travel in m: 13.40...13.60 * 4th pressure hPa : 1250 Rack travel in m: 14.00...14.20 5th pressure hPa :-Rack travel in m: 10.60...10.80 START CUT-OUT Speed 1/min: 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 : 950 Speed rpm Del.quantity cm3/: 204.0...207.0 1000 s: (201.0...210.0) Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed : 800 rpm Del.quantity cm3/: 220.0...224.0 1000 s: (217.0...227.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 123.0...125.0 1000 s: (120.0...128.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40 Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 210.0...230.0 1000 s: (206.0...234.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: MB 12,8 0 3 Test sheet Edition : 26.04.91 Replaces : 19.3.91 Test oil : ISO-4113

Combination no. : 0 402 648 914

Injection pump

Pump designation : PE8P120A320LS7835

EP type number : 0 412 628 847

Governor

: RQV300...1050PA797-Governor design.

: 0 421 813 921 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M402 A

1st version kW : 280.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar : 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per vaiues.__

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 8-7-2-6-3-5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 14.80...15.00

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

cm3 : 0.6 Spread

100 s: (0.9)

rom : 300.02nd speed

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6

Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.50...1.00 travel mm

2nd speed rpm : 625

travel mm : 4.80...5.30

3rd speed rpm : 830

: 5.90...6.40 travel mm

4th speed rpm : 1108

: 8.10...8.60 travel mm

rpm : 1190 5th speed

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 1000 Del.quantity : 225.0...227.0 1000 : (222.0...230.0) cm3 : 6.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.30 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1250 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 82...90 Testing: Minimum rack trave: 7.80 Speed rpm : 300 Rack travel in mm : 6.20...6.80 CONSTANT REGULATION rpm : 300...500 Speed TORQUE CONTROL Dimension a mm : 0.60 2nd speed rpm : 1050 Rack travel in m: 14.30...14.50 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed mon hPa : 1000 Pressure : 14.90...15.00 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.00...10.20 2nd pressure hPa : 650

Rack travel in m: 13.60...13.80

3rd pressure hPa : 1200
Rack travel in m: 14.90...15.00 *
4th pressure hPa : -Rack travel in m: 9.00...9.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 1050
Del.quantity cm3/: 214.0...217.0
1000 s: (211.0...220.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 800 Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rom Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.30 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0) Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: № 12,8 o 4 : 26.04.91 : 19.3.91 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 402 648 915

Injection pump

Pump designation : PE8P120A320LS7835 EP type number : 0 412 628 847

Governor

Governor design. : RQ300/1050PA993-1

: 0 421 801 582 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M402 A

1st version kW : 280.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 : (5.45...5.65) Prestroke mm

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-

: 0-45-90-135-180-225-Phasing

270-315 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.80...15.00

Del.quantity cm3/: 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.2...6.8 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread 100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000 Del.quantity

; : 225.0...227.0 1000 : (222.0...230.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm

Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.30 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1350 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: Speed rpm Minimum rack trave: 7.80 : 300 Speed rpm Rack travel in mm : 6.20...6.80 Rack travel in mm : 2.00 : 380...420 Speed rpm TORQUE CONTROL : 0.50 Dimension a mm 2nd speed rpm : 1050 Rack travel in m: 14.30...14.50 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 1000 Rack travel mm : 14.80...15.00 Measurement 1/min: 600 Speed 1st pressure hPa : 250 Rack travel in m: 10.00...10.20 2nd pressure hPa : 650 Rack travel in m: 13.60...13.80 3rd pressure hPa : 1200 Rack travel in m: 14.90...15.00 * 4th pressure hPa : Rack travel in m: 9.00...9.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1500 : 1050 Speed rpm Del.quantity cm3/: 214.0...217.0 1000 s: (211.0...220.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed : 800 rpm Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rom Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0) cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.30 Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 210.0...230.0 1000 s: (206.0...234.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

G04

Note remarks

: MB 18,3 L 3 Test sheet : 24.04.91 Edition : 1.2.90 Replaces Test oil : ISO-4113

: 0 402 649 810 Combination no.

Injection pump

Pump designation : PE10P120A320LS7809 : 0 412 629 800

EP type number

Governor-

: RQV350...1050PA870-6 Governor design.

: 0 421 813 766 Governer no.

Customer-spec, information

: MERCEDES-BENZ Customer

: 0M443 LA Engine

1st version kW : 401.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 130...150

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 20.00...21.00

Firing order : 10- 9- 4- 1- 8- 7-6-3-5-2

: 0-45-72-117-144-189-Phasing

216-261-288-333 : 0.50 (0.75)

Tolerance + - °

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.30...14.50

Del.quantity cm3/: 21.0...21.4

100 s: (20.7...21.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0 Rack travel in mm: 6.2...6.8

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6 Spread 100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.90...2.10 travel mm

rpm : 700 2nd speed : 4.10...4.50 travel mm

: 1100 3rd speed rpm

: 7.60...8.00 travel mm : 1200 4th speed rpm

: 9.50...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 750 4th pressure hPa : 1100 Rack travel in m: 14.80...15.00 : 210.0...214.0 5th pressure hPa Del.quantity 1000 : (207.0...217.0) Rack travel in m: 11.10...11.40 cm3 : 5.00 Spread 1000 : (9.00) START CUT-OUT RATED SPEED Speed 1/min: 270 (290) 1st version FUEL DELIVERY CHARACTERISTICS Control lever position degrees: 114...122 1st version Testina: Aneroid pressure h: 1300 1st rack travel in: 14.10 Speed : 1050 rpm rpm : 1090...1100 Del.quantity cm3/: 224.0...226.0 1000 s: (221.0...229.0) 2nd rack travel in: 4.00 rpm : 1155...1185 cm3 : 8.00Speed Spread 4th rack travel in: 1300 1000 s: (12.0) rpm : 0.00...1.00Aneroid pressure h: 1300 Speed Speed : 850 rpm Del.quantity cm3/: 232.0...236.0 1000 s: (229.0...239.0) LOW IDLE 1 Control lever position degrees: 64...72 cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1300 Testing: Speed Speed : 1050 mqn rpm Del.quantity cm3/: 168.0...170.0 1000 s: (165.0...173.0) Minimum rack trave: 8.60 : 350 Speed rpm Rack travel in mm : 6.20...6.80 cm3 : 8.00 Spread 1000 s: (12.0) CONSTANT REGULATION Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/ : 132.0...136.0
1000 s: (129.0...139.0) rpm : 300...400 Speed TORQUE CONTROL Dimension a mm : 0.40 Spread cm3 : 8.002nd speed rpm : 1050 Rack travel in m: 15.10...15.30 3rd speed rpm : 800 Rack travel in m: 15.50...15.70 1000 s: (-) **BREAKAWAY** Aneroid/Altitude 1st version Compensator Test 1mm rack travel less than full load rack tr: 14.10 1st version Speed rpm : 1090...1100 Setting Speed : 600 STARTING FUEL DELIVERY nom Pressure hPa : 900 : 14.30...14.50 Rack travel mm Speed rpm : 100 Del.quantity cm3/: 240.0...260.0 1000 s: (236.0...264.0) Measurement $1/\min : 600$ Speed 1st pressure hPa : 400 Remarks: Rack travel in m: 11.70...11.90 2nd pressure hPa : 550 Rack travel in m: 13.20...13.40 * Increase in control-rod travel with 3rd pressure hPa : 960 respect to setting at least 0.1 mm Rack travel in m: 14.40...14.50 *

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: SCA 9,0 k 1 : 24.04.91 Test sheet Edition

Replaces Test oil : ISO-4113

Combination no. : 0 402 676 810

Injection pump

Pump designation : PE6P120A320RS7138 EP type number : 0 412 626 822

Governor

Governor design. : RSV350...1050P1A512-

Governer no. : 0 421 833 334

Customer-spec. information Customer : SCANIA

: DS9 60 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 350.0Rack travel in mm: 4.5...4.9

Del.quantity cm3/: 2.0...2.4 100 s: (-)

cm3 : 0.3 Spread 100 s: (0.6)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 165.0...167.0 Del.quantity 1000 : (162.0...170.0)

: 6.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 109...117

Testing:

1st rack travel in: 11.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Speed rpm : 1140...1170 4th rack travel in: 1300 Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 76...84

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 4.1

Testing:

Speed rpm: 100
Minimum rack trave: 19.50
Speed rpm: 350
Rack travel in mm: 4.50...4.70
Rack travel in mm: 2.00

Speed rom : 445...505

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...320.0

1000 s: (-)
Rack travel in mm : 20.00...21.00

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

G09

Note remarks

Test sheet : MB 14,7 g 9 Edition : 26.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 678 814

Injection pump

Pump designation : PE8P120A320LS7801-2

EP type number : 0 412 628 825

Governor

: RSV350...1050P0A535-Governor design.

: 0 421 833 352 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M442LA Engine

1st version kW : 260.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 8

BASIC SETTING

rpm: 500 1st speed

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 20.1...20.3

100 s: (19.8...20.6)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 5.6...5.8
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 500 Speed Aneroid pressure h: 700

: 201.0...203.0 Del.quantity

1000 : (198.0...206.0) cm3 : 5.00

1000 : (9.00)

RATED SPEED

Spread

1st version Control lever position degrees: 90...98 Testina: 1st rack travel in: 11.50 rpm : 1070...1080 Speed 2nd rack travel in: 4.00 Speed rpm : 1140...1158 4th rack travel in: 1400 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 5.7 Testing: Speed rpm : 100 Minimum rack trave: 19.50 : 350 rpm Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 Speed : 360...420 rom SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version st speed rpm : 1030
Rack travel in m: 12.50...12.70
nd speed rpm : 700
Rack travel in m: 14.20...14.40 1st speed 2nd speed rd speed rpm : 900 Rack travel in m: 13.40...13.60 3rd speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 600hPa : 700 Rack travel mm : 13.90...14.10 Measurement Speed 1/min: 600 1st pressure hPa : 400 Rack travel in m: 12.30...12.50

2nd pressure hPa : 500
Rack travel in m: 13.20...13.40

3rd pressure hPa : 925
Rack travel in m: 14.00...14.10 *

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 : 1030 Speed rpm Del.quantity cm3/: 181.0...184.0 1000 s: (178.0...187.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1100 Speed rpm : 700 Del.quantity cm3/ : 213.0...217.0 1000 s: (210.0...220.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 143.0...145.0 1000 s: (140.0...148.0) Spread cm3 : 8.001000 s: (-) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1070...1080 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 180.0...200.0 1000 s: (176.0...204.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

4th pressure hPa : -

Rack travel in m: 10.80...11.10

Note remarks

Test sheet : MB 14,7 g10 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 678 815

Injection pump

Pump designation : PE8P120A320LS7801-1

EP type number : 0 412 628 818

Governor

Governor design. : RSV650...1200POA535

Governer no. : 0 421 833 357

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : 0M442A

: 245.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (4.15...5.35) Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 17.0...17.2

100 s: (16.7...17.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 650.0 2nd speed Rack travel in mm: 4.0...4.6

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed

Del quantity : 170.0...172.0 1000 : (167.0...175.0)

Spread : 5.00 cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testing:

1st rack travel in: 11.00

Speed rpm : 1215...1225

2nd rack travel in: 4.00

Speed rpm : 1249...1267

4th rack travel in: 1500

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 71...79

Setting point w/out bumper spring

rpm : 650 Rack travel in mm: 4.3

Testina:

rpm : 100 Speed

Minimum rack trave: 19.50 : 650 Speed rpm

Rack travel in mm : 4.00...4.60 Rack travel in mm : 2.00

Speed nom : 660...720

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 12.20...12.30

2nd speed rpm : 1000

Rack travel in m: 12.40...12.60

3rd speed rpm : 900

Rack travel in m: 12.80...13.00

4th speed rpm : 600

Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 195.0...199.0 1000 s: (192.0...202.0)

cm3 : 8.00 Spread

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1215...1225 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 170.0...190.0 1000 s: (166.0...194.0)

Remarks:

Note remarks

: MB 14,7 g11 : 03.05.91 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 678 815

Injection pump

: PE8P120A320LS7801-1 Pump designation

EP type number : 0 412 628 818

Governor

Governor design. : RSV650...1200P0A826-

: 0 421 833 357 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M442A Engine

1st version kW : 245.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (4.15...5.35)

Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

Spread

Firing order

1st speed rpm: 1180

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 17.0...17.2

100 s: (16.7...17.5)

cm3 : 0.5

100 s: (0.9)

rpm : 650.0 2nd speed Rack travel in mm: 4.0...4.6

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1180 Speed

Del.quantity

1000 : (167.0...175.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 92...100 Testina: 1st rack travel in: 11.20 Speed rpm : 1215...1225 2nd rack travel in: 4.00 Speed rpm : 1249...1267 4th rack travel in: 1500 Speed rpm : 0.30...1.40LOW IDLE 1 Control Lever position degrees: 71...79 Setting point w/out bumper spring Speed rpm : 650 Rack travel in mm: 4.3 Testing: Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 650
Rack travel in mm : 4.00...4.60
Rack travel in mm : 2.00 rpm : 660...720 Speed SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1180 Rack travel in m: 12.20...12.30 2nd speed rpm : 1000 Rack travel in m: 12.40...12.60 3rd speed rpm : 900 Rack travel in m: 12.80...13.00 4th speed rpm : 600 Rack travel in m: 13.50...13.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 900 Del.quantity cm3/ : 184.0...187.0 1000 s: (181.0...190.0) Spread cm3 : 8.00 1000 s: (12.0) Speed rpm : 600 Del.quantity cm3/: 195.0...199.0

1000 s: (192.0...202.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version G15

1mm rack travel less than

full load rack tr: 11.20 Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 170.0...190.0 1000 s: (166.0...194.0)

Remarks:

Note remarks

: CUM 5,9 w : 13.05.91 : 15.11.90 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 0 402 736 806

Injection pump

Pump designation : PES6P110A120RS7213

: 0 412 716 804 EP type number

Governor

Governor design. : RQV400...1250PA964K

: 0 421 815 252 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

: 171.5 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 4.35...4.45 : (4.30...4.50) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 15.80...15.90

Del.quantity cm3/: 16.8...17.0

100 s: (16.5...17.3)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 400.02nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 0.70...1.10

2nd speed rpm : 400

travel mm : 1.40...1.60

3rd speed rpm : 600 travel mm

: 2.90...3.30 : 1300 4th speed rom

: 7.20...7.40 travel mm

: 1500 5th speed rpm

travel mm : 9.10...9.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

Aneroid pressure h: 1200

cm3 : 5.00Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 56...64 Testing: 1st rack travel in: 14.80 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1485...1515 Speed 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.6 Testing: Speed rpm : 275 Minimum rack trave: 7.20 Speed rpm : 400 Rack travel in mm : 5.50...5.70 CONSTANT REGULATION Speed rpm : 325...520 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 15.80...15.90 2nd speed rpm : 825 Rack travel in m: 14.60...14.80 3rd speed rpm : 700 Rack travel in m: 14.00...14.40 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1250 hPa : 1200 Pressure Rack travel mm : 15.80...15.90 Measurement 1/min: 1250 Speed

3rd pressure hPa : 935 Rack travel in m: 13.60...14.00 START CUT-OUT 1/min: 300 (310) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 825 rpm Del.quantity cm3/: 178.0...184.0 1000 s: (175.0...187.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 87.0...91.0 1000 s: (85.0...93.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.80 Speed rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 155.0...175.0 1000 s: (150.0...180.0) Rack travel in mm : 12.40...13.40 LOW IDLE Speed rpm : 400 Rack travel in mm: 5.50...5.70
Del.quantity cm3/: 32.0...38.0
1000 s: (30.0...40.0)
Spread cm3: 8.00 1000 s: (12.00) Remarks: : C.D.C. # 3913440 Start-of-delivery mark 6° cam angle after start of delivery cyl. 1

1st pressure hPa : -

2nd pressure hPa : 375

Rack travel in m: 8.00...8.40

Rack travel in m: 10.00...10.10

Note remarks

: CUM 5,9 w 2 Test sheet Edition : 13.05.91 : 19.3.91 Replaces

Test oil : ISO-4113

Combination no. : 0 402 736 811

Injection pump

: PES6P110A120RS7213 Pump designation

EP type number : 0 412 716 804

Governor

Governor design. : RQV400...1250PA964-3

: 0 421 815 255 Governer no.

Customer-spec. information Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 147.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 115...125

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45 : (4.30...4.50)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 15.8...16.0

100 s: (15.5...16.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 400.0Rack travel in mm: 5.5...5.7

Del.quantity cm3/: 3.2...3.8 100 s: (3.0...4.0)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm

0.70...1.10 travel mm 2nd speed 400 rpm

1.40...1.60 travel mm

3rd speed 600 rom

2.90...3.30 travel mm 1300

4th speed rom 7.20...7.40 travel mm

1500 5th speed rom

: 9.10...9.50 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

1000 : (155.5...160.5) Del.quantity

cm3 : 5.00 1000 : (9.00) Spread

1st version Control lever

RATED SPEED

position degrees: 56...64

Testing:

1st rack travel in: 13.80

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1460...1490 4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 12...20

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.6

Testina:

Speed rpm : 275 Minimum rack trave: 7.20

rpm : 400

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 325...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.80...14.90

2nd speed rpm : 800

Rack travel in m: 13.20...13.40

Aneroid/Altitude

Compensator Test

1st version

Setting

: 1250 Speed rpm hPa : 1200 Pressure

Rack travel mm : 14.80...14.90

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 8.20...8.60

2nd pressure hPa : 410

Rack travel in m: 10.00...10.10 3rd pressure hPa : 755 Rack travel in m: 13.20...13.60

START CUT-OUT

1/min: 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 800 Del.quantity cm3/: 156.5...162.5 1000 s: (153.5...165.5)

cm3 : 8.00 Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 90.0...94.0 1000 s: (88.0...96.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...160.0

1000 s: (135.0...165.0)

Rack travel in mm : 11.90...12.90

LOW IDLE

rpm : 400

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 32.0...38.0 1000 s: (30.0...40.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: C.D.C # 3918321

Start-of-delivery mark = 5.5° after

start of delivery cyl. 1.

Note remarks

Test sheet : MB 11,8 s 2 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 906

Injection pump

Pump designation : PES6P12OA72OLS7196

EP type number : 0 412 726 831

Governor

Governor design. : RQV450...1050PA985

: 0 421 813 917 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 h LA

: 304.0 1st version kW

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15) Rack travel in mm : 19.00...21.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 28.4...28.6

100 s: (28.1...28.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 450.0 2nd speed

Rack travel in mm: 4.0...4.6

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 450

travel mm : 1.10...1.60

: 650 2nd speed rpm

travel mm : 3.50...4.00

: 940 3rd speed man

: 5.50...6.00 travel mm : 1107

4th speed rpm

: 7.30...7.80 travel mm

5th speed : 1226 rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Ameroid pressure h: 950 Del.quantity : 284.0...286.0 1000 : (281.0...289.0) : 5.00 Spread cm31000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 113...121 Testina: 1st rack travel in: 14.40 Speed rpm: 1090...1100 2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1300 Speed Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 61...69 Testina: Speed : 300 rpm Minimum rack trave: 5.90 rpm : 450 Rack travel in mm : 4.00...4.60 CONSTANT REGULATION rpm : 450...650 Speed TORQUE CONTROL Dimension a mm : 0.60 : 1050 2nd speed rpm Rack travel in m: 15.40...15.60 : 900 3rd speed rpm Rack travel in m: 15.70...15.90 : 800 4th speed rom Rack travel in m: 16.00...16.20 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 950 Pressure Rack travel mm : 15.20...15.40 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 12.60...12.80 2nd pressure hPa : 600

Rack travel in m: 14.50...14.70 3rd pressure hPa : 1200 Rack travel in m: 16.30...16.50 4th pressure hPa : Rack travel in m: 9.80...10.20 START CUT-OUT Speed 1/min : 370 (390) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/: 280.0...283.0 1000 s: (277.0...286.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1600 rpm : 800 Speed Del.quantity cm3/: 298.0...302.0 1000 s: (295.0...305.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.40 : 1090...1100 Speed rom STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 280.0...300.0 1000 s: (276.0...304.0) Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Test sheet : RVI 9,8 n Edition : 24.04.91 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 907 Injection pump Pump designation : PES6P120A320RS7231 EP type number : 0 412 726 844 Governor Governor design. : RQV275...1000PA927-1 : 0 421 813 923 Governer no. Customer-spec. information Customer : RVI : MIDR 06-20-45 Engine : 249.0 1st version kW : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness : 8.00X2.50X1000 x Length mm

Rack travel in mm : 13.50...14.50 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 600 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 24.6...24.8 100 s: (24.3...25.1) cm3 : 0.5Spread 100 s: (0.9) rpm : 275.0 2nd speed Rack travel in mm : 4.5...4.9 Del.quantity cm3/: 2.3...2.9 100 s: (2.0...3.2) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1060 : 8.10...8.30 rpm : 275 travel mm 2nd speed : 1.10...1.50 travel mm 3rd speed rpm : 500 : 3.60...4.20 travel mm 4th speed rpm : 750 : 5.70...6.10 travel mm 5th speed rpm : 1400 travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1065 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 1000 Del.quantity : 246.U...240.U (243.0...251.0)

: 4.65...4.75 : (4.60...4.80)

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 297...305

Testina:

1st rack travel in: 12.90 rpm : 1055...1065 Speed

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 242...250

Testing:

Speed : 200 rom Minimum rack trave: 5.90 : 275 rpm

Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

rpm : 310...430 Speed

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rpm Pressure hPa : 1000

: 13.90...14.00 Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 9.90..10.30

2nd pressure hPa : 600

Rack travel in m: 13.10...13.20 3rd pressure hPa : 200

Rack travel in m: 10.70...11.10

START CUT-OUT

1/min: 225 (245) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 1000

G23

Del.quantity cm3/: 240.0...246.0 1000 s: (237.0...249.0)

Speed rpm : 500 Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 138.0...140.0

1000 s: (135.0...143.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

rpm : 1055...1065

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...165.0 1000 s: (131.0...169.0)

LOW IDLE

: 275 Speed rpm

Rack travel in mm : 4.50...4.90 Del.quantity cm3/: 23.0...29.0 1000 s: (20.0...32.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

FEHLENDEN TEXT LIBERSETZEN

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 12,0 m Edition : 13.05.91 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 911 Injection pump Pump designation : PES6P120A720RS7239 : 0 412 726 850 EP type number Governor : RQV325...900PA944-13 Governor design. : 0 421 815 284 Governer no. Customer-spec. information Customer : MACK TRUCKS : E7-350 ITC Engine 1st version kW : 261.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24 : 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasina Phasing Tolerance + - ° : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING rpm: 900 1st speed Rack travel in mm : 12.80...12.90 Del.guantity cm3/: 23.1...23.3 100 s: (22.8...23.6) cm3 : 0.5 Spread 100 s: (0.9) 2nd speed rpm : 325.0 Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 4.6...5.2 100 s: (4.4...5.4) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed : 325 : 1.20...1.40 travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm 3rd speed rpm : 650 : 5.60...5.80 travel mm : 900 4th speed rpa travel mm : 8.30...8.50 : 1100 5th speed rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid pressure h: 1200 : 231.5...233.5 1000 : (228.5...236.5) Del.quantity : 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 58...66

Testina:

1st rack travel in: 11.80 rpm : 940...990 Speed

2nd rack travel in: 4.00

: 1090...1100 Speed mom

4th rack travel in: 1200

: 0.00...1.00 Speed rom

LOW IDLE 1 Control lever

position degrees: 8...16

Testing:

Speed rom Minimum rack trave: 6.20 : 325 Speed man

Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rom : 325...520

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 12.80...12.90

2nd speed rpm : 625

Rack travel in m: 12.70...12.90 3rd speed rpm : 500 Rack travel in m: 10.70...11.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 900 man Pressure hPa : 1200

Rack travel mm : 12.80...12.90

Measurement

1/min: 900 Speed

1st pressure hPa : -

Rack travel in m: 7.40...7.80

2nd pressure hPa : 365

Rack travel in m: 8.90...9.00

3rd pressure hPa : 665

Rack travel in m: 11.30...11.70

START CUT-OUT

1/min : 250 (255) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 875

Del.quantity cm3/: 199.0...201.0 * 1000 s: (180.5...207.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 147.5...151.5 1000 s: (145.5...153.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.80

rpm : 940...990

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 220.0...250.0 1000 s: (215.0...255.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 46.5...52.5

1000 s: (44.5...54.5)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5203-P8

У

FEHLENDEN TEXT ÜBERSETZEN Y

Bow dimension:

Sliding-sleeve position = 37.0 mm * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection pump test

bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC 12,0 m1 Edition : 13.05.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 912

Injection pump

Pump designation : PES6P120A720RS7239

EP type number : 0 412 726 850

Governor

: RQV325...875PA944-14 Governor design.

: 0 421 815 285 Governer (10).

Customer-spec. information

Customer : MACK TRUCKS

: EM7-300 ITC Engine

1st version kW : 224.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.25...3.35 Prestroke mm

: (3.20...3.40) Rack travel in mm : 11.00...13.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 11.70...11.80

Del.guantity cm3/: 22.4...22.6

100 s: (22.1...22.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 4.4...4.6

Del.quantity cm3/: 4.6...5.2 100 s: (4.4...5.4)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm

1.70...1.90 travel mm

2nd speed : 450 rpm

4.20...4.60 travel mm

3rd speed 650 rpm

travel mm 8.00...8.40

4th speed 900 rpm

10.00...10.20 travel mm

1000 5th speed man

10.80...11.20 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

: 224.5...226.5 Del.quantity

1000 : (221.5...229.5)

: 5.00 Spread cm3

1000 ; (9.00)

RATED SPEED 1st version Control lever position degrees: 63...71 Testing: 1st rack travel in: 10.70 Speed rpm : 915...965 2nd rack travel in: 4.00 rpm : 1025...1035 Speed 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 9...17 Testing: Speed : 275 rom Minimum rack trave: 6.00 rpm : 325 Rack travel in mm : 4.40...4.60 CONSTANT REGULATION Speed rom : 325...520 TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version rpm : 875 1st speed Rack travel in m: 11.70...11.80 2nd speed rpm : 510 Rack travel in m: 13.40...13.60 3rd speed rpm : 450 Rack travel in m: 12.30...12.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 rom hPa : 1200 Pressure Rack travel mm : 13.40...13.60 Measurement Speed 1/min: 510 1st pressure hPa : -Rack travel in m: 7.10...7.50 2nd pressure hPa : 370 Rack travel in m: 8.70...8.80 3rd pressure hPa : 730 Rack travel in m: 11.50...11.90

1/min: 250 (255) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 510 Del.quantity cm3/: 331.5...337.5 1000 s: (328.5...340.5) cm3 : 8.00 Spread 1000 s: (12.0) : 875 \$peed rpm Del.quantity cm3/: 199.0...201.0 * 1000 s: (159.5...183.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 160.0...164.0 1000 s: (158.0...166.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 915...965 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 205.0...245.0 1000 s: (200.0...250.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 45.0...52.0 1000 s: (44.0...54.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MACK # 313GC5203-P6 FEILENDEN TEXT UBERSETZEN У У Bow dimension: Sliding-sleeve position = 37.0 mm * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test

bench: setting for test equipment,

check value for engine equipment.

START CUT-OUT

Note remarks

Test sheet : MB 11,8 t Edition : 26.04.91

Replaces

Test oil : ISO-4113

: 0 402 746 914 Combination no.

Injection pump

Pump designation : PES6P120A720LS7238

EP type number : 0 412 726 852

Governor

Governor design: : RQ300/1100PA1008

Governer no. : 0 421 801 591

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 hLA

: 220.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 : (5.45...5.65) Prestroke mm

Rack travel in mm : 20.00...21.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm: 14.00...14.20

Del.quantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 6.5...7.1

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 600

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 rpm

Rack travel in mm : 20.0

Testing: 1st rack travel in: 13.60 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.8 Testing: Speed rpm : 200 Minimum rack trave: 8.70 : 300 Speed rpm Rack travel in mm : 6.50...7.10 Rack travel in mm: 2.00 : 370...410 Speed COR Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 600 Rack travel mm : 14.00...14.20 Measurement 1/min: 600 Speed 1st pressure hPa : 150 Rack travel in m: 12.20...12.40 2nd pressure hPa : 400 Rack travel in m: 13.60...13.80 3rd pressure hPa : 800 Rack travel in m: 14.20...14.40 4th pressure hPa : 1100 Rack travel in m: 15.10...15.30 5th pressure hPa : Rack travel in m: 11.70...12.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 1100 Speed Del.quantity cm3/: 229.0...232.0 1000 s: (226.0...235.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1400 Speed rpm : 700 Del.quantity cm3/: 238.0...242.0 1000 s: (235.0...245.0) Spread cm3 : 8.00 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 1145...1160

1

Remarks:

‡

H03

Note remarks

Test sheet : VOL 7,1 f Edition : 24.04.91 Replaces

Test oil : ISO-4113

: 0 402 846 050 Combination no.

Injection pump

Pump designation : PE6P110A320RS8009 EP type number : 0 412 816 010

Governor

Governor design. : RQV250...1200PA953K

: D 421 815 996 Governer no.

Customer-spec. information

Customer : VOLVO-TRUCK

Engine : TD73EB

1st version kW : 184.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 064

Inlet press., bar: 2.50

Overflow

quantity min. 1/h: 100...110

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.80...3.90 Prestroke mm

: (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 16.4...16.6

100 s: (16.2...16.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm: 4.7...5.1
Del.quantity cm3/: 2.1...2.5
100 s: (1.8...2.8)
Spread cm3: 0.7

100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.10...1.50 travel mm

2nd speed : 400 rom

: 3.00...3.60 travel mm

: 850 3rd speed rom

: 6.70...7.30 travel mm

4th speed : 1250 rpm

: 10.30...10.50 travel mm

rpm : 1350 5th speed

travel mm : 11.40...11.80

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1240 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1200 Aneroid pressure h: 1200 : 164.0...166.0 Del.quantity 1000 : (162.0...168.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 117...125 Testing: 1st rack travel in: 11.30 rpm : 1260...1270 Speed 2nd rack travel in: 4.00 Speed rpm : 1350...1380 4th rack travel in: 1450 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 69...77 Testina: Speed rom : 100 Minimum rack trave: 6.40 rpm : 300 Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 12.30...12.40 rpm : 700 2nd speed Rack travel in m: 12.00...12.20 rpm : 850 3rd speed Rack travel in m: 12.20...12.40 rpm : 350 4th speed Rack travel in m: 10.80...11.10 Ameroid/Altitude Compensator Test 1st version Setting rpm : 1000 Speed hPa : 1200 Pressure Rack travel mm : 12.30...12.40 Measurement Speed $1/\min : 1000$

1st pressure hPa : Rack travel in m: 7.30...7.50
2nd pressure hPa : 90
Rack travel in m: 7.50...7.60
3rd pressure hPa : 830
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm3/: 195.0...199.0
1000 s: (192.0...202.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: Speed rpm : 700
Del.quantity cm3/: 99.0...101.0
1000 s: (96.0...104.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1260...1270

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.70...4.90

Remarks:

:

Note remarks

: VOL 7,1 f 1 : 24.04.91 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 846 051

Injection pump

Pump designation : PE6P110A320RS8009

EP type number : 0 412 816 010

Governor

Governor design. : RQV250...1200PA953-1

: 0 421 815 995 Governer no.

Customer-spec. information

: VOLVO-TRUCK Customer

Engine : TD73EA

: 158.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 064

Inlet press., bar: 2.50

Overflow

quantity min. 1/h: 100...110

Test nozzle holder

: 1 688 901 101 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.80...3.90 : (3.75...3.95) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 15.2...15.4

100 s: (15.0...15.6)

cm3 : 0.5 Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 4.7...5.1 Del.quantity cm3/: 2.1...2.5

100 s: (1.8...2.8)

cm3 : 0.7Spread 100 s: (1.1)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.50

rpm : 400 2nd speed

travel mm : 3.00...3.60

3rd speed : 850 rpm

travel mm 6.70...7.30

1250 4th speed rpm

travel mm 10.30...10.50

rpm : 1350 5th speed

travel mm : 11.40...11.80

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1240 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

H06

1st version rpm : 1200 Speed Aneroid pressure h: 1200 : 152.0...154.0 Del.quantity : (150.0...156.0) 1000 : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testina: 1st rack travel in: 10.70 rpm : 1260...1270 Speed 2nd rack travel in: 4.00 Speed rpm: 1330...1360 4th rack travel in: 1450 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 69...77 Testing: Speed : 100 rom Minimum rack trave: 6.40 : 300 Speed rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION : 300...450 Speed rom TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 11.70...11.80 : 700 2nd speed rpm Rack travel in m: 10.40...10.60 rpm : 1000 3rd speed Rack travel in m: 11.70...11.90 : 350 4th speed rpm Rack travel in m: 9.70...9.90 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1000 rpm Pressure hPa : 1200 : 11.70...11.80 Rack travel mm

1/min: 1000

1st pressure hPa : -Rack travel in m: 7.30...7.50 2nd pressure hPa : 90 Rack travel in m: 0.20...0.30
3rd pressure hPa : 740
Rack travel in m: 3.90...4.10 START CUT-OUT 1/min: 170 (190) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 700 Del.quantity cm3/ : 158.0...162.0 1000 s: (155.0...165.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 700 Del.quantity cm3/: 99.0...101.0 1000 s: (96.0...104.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.70 rpm : 1260...1270 Speed LOW IDLE rpm : 300 Rack travel in mm : 4.70...4.90 Remarks:

H07

Speed

Measurement

Note remarks

: MB 4,0 H 1 : 24.04.91 Test sheet : 18.02.91 Replaces Test oil : ISO-4113

Combination no. : 0 403 444 120

Injection pump

Pump designation : PES4MW100/720RS1151

EP type number : 0 413 404 104

Governor

Governor design. : RQ300/1300MW105-2 Governer no. : 0 420 082 051

Customer-spec. information Customer : MB-NFZ

: 0M364A Engine

1st version kW : 87.0 : 2600 Rated speed

TEST, BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Edition

rpm : 13001st speed

Firing order

Tolerance + - °

BASIC SETTING

Phasing

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

: 1-3-4-2

: 0-90-180-270

: 0.50 (0.75)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 14001st speed

: 7.30...7.70 travel mm

: 1300 2nd speed rpm

: 6.10...6.30 travel mm

3rd speed : 550 rpm

: 5.70...6.30 travel mm

: 300 4th speed rpm : 2.10...2.50 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: 107 rpm : 800

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 700

: 98.0...100.0 Del.quantity

1000 : (96.0...102.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

H08

Control lever position degrees: 89...97 Setting point: Speed : 800 rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 11.30 Speed rpm : 1345...1360 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 69...77 Setting point w/out bumper spring Speed rpm Rack travel in mm: 6.4 Testing: Speed : 200 rpm Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 6.30...6.50 TORQUE CONTROL Dimension a mm : 0.50 Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 12.30...12.40 2nd speed rpm : 600 Rack travel in m: 12.80...12.90 3rd speed rpm : 1100 Rack travel in m: 12.40...12.70 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 11.00...11.10 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 200 Rack travel in m: 11.70...11.80 2nd pressure hPa : 300
Rack travel in m: 12.30...12.60
3rd pressure hPa : 700 Rack travel in m: 12.80...12.90 START CUT-OUT

1/min : 200 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm Del.quantity cm3/: 87.0...90.0 1000 s: (84.5...92.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 59.0...61.0 1000 s: (57.0...63.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1345...1360 Speed STARTING FUEL DELIVERY Speed rpm Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks:

H09

1st version

Note remarks

Test sheet : MB 4,0 H 5 Edition : 26.04.91 Replaces : 18.02.91 Test oil : ISO-4113

Combination no. : 0 403 444 125

Injection pump

Pump designation : PES4MW100/720RS1151

EP type number : 0 413 404 104

Governor

Governor design.: RQV300...1300MW67-3

: 0 420 083 242 Governer no.

Customer—spec. information Customer : MB-NFZ

Engine : OM 364 LA

1st version kW : 102.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

H10

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.8...7.0

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3: 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.40...8.80 travel mm : 880 2nd speed rpm : 4.90...5.10 travel mm

rpm : 500 3rd speed

: 2.70...3.30 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1340 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 98.0...100.0 1000 : (96.0...102.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Spread cm3 : 5.00 1000 s: (7.0) Speed rpm : 1300 Del.quantity cm3/: 66.0...68.0 1000 s: (64.0...70.0) Control lever position degrees: 117...125 Testing: 1st rack travel in: 11.70 Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 49.0...51.0
1000 s: (47.0...53.0) rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 rom : 0.00...1.00Speed BREAKAWAY LOW IDLE 1 Control lever 1st version position degrees: 83...91 1mm rack travel less than Setting point w/out bumper spring rpm : 300 Speed full load rack tr: 11.70 Rack travel in mm: 6.9 rpm : 1340...1350 Speed Testina: STARTING FUEL DELIVERY Speed rpm : 200 Minimum rack trave: 8.50 Speed rpm : 100 Del.quantity cm3/ : 85.0...95.0 1000 s: (82.0...98.0) rpm : 300 Speed Rack travel in mm : 6.80...7.00 CONSTANT REGULATION rpm : 320...550 Speed LOW IDLE Aneroid/Altitude Speed rpm : 300 Rack travel in mm : 6.80...7.00 Compensator Test Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.50 1000 s: (5.50) 1st version Setting om : 500 hPa : 200 Speed rpm Pressure Remarks: Rack travel mm : 11.30...11.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.70 2nd pressure hPa : 335 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.70...12.80 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0)

H11

Note remarks

Test sheet : AIF 5,9 A
Edition : 24.04.91
Replaces : 12.04.90
Test oil : ISO-4113

Combination no. : 0 403 446 238

Injection pump

Pump designation : PES6MW100/720RS1188

EP type number : 0 413 406 175

Governor

Governor design. : RQV300...1350MW106 Governor no. : 0 420 083 200

Customer—spec. information Customer : AIFO

Engine : 8061.25.051

1st version kW : 210.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 11.50...14.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1350

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 12.4...12.6

100 s: (12.2...12.8)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7) cm3 : 0.3

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1530

travel mm : 9.00...9.20 2nd speed rpm : 1400

travel mm : 7.80...8.20 3rd speed rpm : 600

travel mm : 2.90...3.50

4th speed rpm : 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm: 1450

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1350

Del.quantity : 124.0...126.0

1000 : (122.0...128.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version

H12

Control lever position degrees: 118...126 Testing: 1st rack travel in: 9.50 rpm : 1380...1390 Speed 2nd rack travel in: 4.00 Speed rpm : 1485...1515 4th rack travel in: 1575 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 84...92 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.0 Testing: Speed rpm : 200 Minimum rack trave: 7.50 rpm : 300 Rack travel in mm : 5.90...6.10 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 800 Del.quantity cm3/: 117.5...120.5 1000 s: (115.0...123.0) cm3 : 5.00Spread 1000 s: (7.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1380...1390 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0) Rack travel in mm: 10.50...10.60 LOW IDLE Speed rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity cm3/ : 11.0...15.0 1000 s: (8.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Note remarks

: IHC 7,6 X Test sheet : 24.04.91 Edition : 28.09.90 Replaces Test oil : ISO-4113

: 0 403 446 239 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1189

EP type number : 0 413 406 177

Governor

: RQV350...1200MW46-21 Governor design.

: 0 420 083 201 Governer no.

Customer-spec. information Customer : NAVISTAR

: DTA-466 Engine

1st version kW : 186.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 14.00...14.10

Del.guantity cm3/: 15.2...15.4

100 s: (15.0...15.6)

cm3 : 0.3 Spread

100 s: (0.6)

rpm : 350.02nd speed

Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.80...10.20 travel mm

rpm : 1250 2nd speed

: 7.90...8.10 travel mm

: 550 3rd speed rpm

: 3.10...3.70 : 350 travel mm

4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 800 Speed Aneroid pressure h: 900

Del.quantity : 152.0...156.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testina:

1st rack travel in: 13.00

rpm : 1280...1300 Speed

2nd rack travel in: 4.00

rpm : 1435...1445 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control Lever

position degrees: 68...76

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.4

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : -Pressure

Rack travel mm : 9.20...9.30

Measurement

1/min: 500 Speed

1st pressure hPa : 250

Rack travel in m: 10.20...10.30

2nd pressure hPa : 550 Rack travel in m: 12.50...12.90 3rd pressure hPa : 900

Rack travel in m: 14.00...14.10

START CUT-OUT

Speed 1/min: 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 1200 Speed

Del.quantity cm3/: 140.0...144.0 1000 s: (138.0...146.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 59.0...61.0 1000 s: (57.0...63.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1280...1300

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

: 3.50 Spread cm3

1000 s: (5.50)

Remarks:

: IHC #1815503C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.25...3.35 Prestroke mm : (3.20...3.40) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : IHC 7,6 W 6 : 24.04.91 Edition : 19,10,90 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 : 0 403 446 240 Tolerance + - * Combination no. : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 1st speed rom: 800 Governor Governor design. : RQV350...1200MW46-22 Rack travel in mm : 11.90...12.00 : 0 420 083 202 Governer no. Del.quantity cm3/: 12.6...12.8 Customer-spec. information 100 s: (12.3...13.1) Customer : NAVISTAR : DTA-466 Engine Spread cm3 : 0.3: 164.0 100 s: (0.6) 1st version kW : 2400 Rated speed rpm : 350.02nd speed Rack travel in mm : 5.2...5.4 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 Test oil 100 s: (1.3...2.2) inlet temp. °C : 38...42 cm3 : 0.3Spread 100 s: (0.5) Overflow valve : 2 417 413 038 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL Test nozzle holder 1st speed 1450 riptii : 1 688 901 101 : 9.80...10.20 assembly travel mm 2nd speed : 1250 rpm : 7.90...8.10 Openina travel mm : 207...210 : 550 pressure, bar 3rd speed rpm : 3.10...3.70 travel mm : 350 Orifice plate 4th speed rpm diameter mm : 0,6 : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter Speed rpm : 800 x Wall thickness Aneroid pressure h: 900 : 126.5...128.5 : 6.00x2.00x600 x Length mm Del.quantity 1000 : (123.5...131.5) (A) Injection pump setting values : 3.50 Spread cm3Insp. values in parentheses 1000 : (6.00) Set equal delivery quant. per values RATED SPEED

1st version

Control lever

position degrees: 104...112

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Testing:

1st rack travel in: 11.00

rpm : 1285...1305 Speed

2nd rack travel in: 4.00

rpm : 1405...1415 Speed

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

Speed Rack travel in mm: 5.3

Testing:

Speed rom : 100

Minimum rack trave: 9.00

Speed rpm : 350 Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rom

Pressure hPa : -

: 9.10...9.20 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : 275

Rack travel in m: 9.90...10.00

2nd pressure hPa : 550 Rack travel in m: 11.40...11.80 3rd pressure hPa : 900

Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min: 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 1200 Speed

Del.quantity cm3/: 124.0...128.0

1000 s: (122.0...130.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

H17

Speed rpm : 500 Del.quantity cm3/ : 72.5...74.5 1000 s: (70.5...76.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1285...1305 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: IHC #1815521C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 W 1 : 24.04.91 Edition : 28.09.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 241 Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 EP type number Governor : RQV350...1200MW46-23 Governor design. : 0 420 083 203 Governer no. Customer-spec. information Customer : NAVISTAR : DT -466 Engine : 157.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6

: 1 680 750 008

: 6.00X2.00X600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

: (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 11.90...12.00 Del.guantity cm3/: 13.0...13.2 100 s: (12.8...13.4) Spread cm3 : 0.3100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed travel mm : 9.80...10.20 2nd speed : 1250 rpm : 7.90...8.10 travel mm : 550 3rd speed rpm travel mm : 3.10...3.70 : 350 4th speed rpm travel mm : 1.30...1.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 900 : 130.0...132.0 Del.quantity 1000 : (128.0...134.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version

: 3.25...3.35

Prestroke mm

Test Lines

x Length mm

Outside diameter x Wall thickness

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Control lever

position degrees: 102...110

Testina:

1st rack travel in: 10.90 Speed rpm : 1270...1290 2nd rack travel in: 4.00

Speed rpm : 1405...1415 4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.4

Testing:

Speed : 100 rpm

Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : -

: 8.80...8.90 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : 220
Rack travel in m: 9.50...9.60
2nd pressure hPa : 500
Rack travel in m: 11.20...11.60
3rd pressure hPa : 900
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min: 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1200

Del.quantity cm3/: 125.0...129.0

1000 s: (123.0...131.0)

cm3 : 5.00 1000 s: (7.0) Spread

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 70.0...72.0 1000 s: (68.0...74.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

: 350 rpm

Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: IHC #1815518C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

Set shutoff stop 1.5...2.0 mm before

shutoff.

In unlatched condition, do not operate greater than n = 500 1/min

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 W 4 Edition : 24.04.91 : 28.09.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 242 Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 EP type number Governor Governor design. : RQV350...1200MW46-24 : 0 420 083 204 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DT -466 : 157.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 800 1st speed Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 13.0...13.2 100 s: (12.8...13.5) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed 9.80...10.20 travel mm 1250 2nd speed rpm travel mm 7.90...8.10 3rd speed : 550 rpm 3.10...3.70 travel mm 350 4th speed rpm 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure n: 900 : 130.0...132.0 Del.quantity : (128.0...135.0) 1000 : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

1st version

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.90

Speed rpm : 1270...1290 2nd rack travel in: 4.00

Speed rpm : 1405...1415 4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 5.4

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00 : 350 rpm

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : -

: 9.50...9.60 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : 215

Rack travel in m: 10.00...10.10

2nd pressure hPa : 425

Rack travel in m: 11.20...11.60

3rd pressure hPa : 900

Rack travel in m: 11.90...12.00

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1200 Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

Spread cm3 : 5.001000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 83.0...85.0 1000 s: (81.0...87.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: IHC #1815515C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not

operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 W Test sheet Edition : 24.04.91 : 16.08.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 243 Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 Governor Governor design. : RQV350...1200MW46-25 Governer no. : 0 420 083 205 Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 145.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate : 0,6 diameter mm Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY Test pressure, bar: 30...32 H22

Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 11.40...11.50 Del.guantity cm3/: 12.0...12.2 100 s: (11.8...12.4) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.80...10.20 travel mm 2nd speed : 1250 rpm : 7.90...8.10 travel am : 550 3rd speed rpm : 3.10...3.70 travel mm : 350 4th speed rom : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 900 Del.quantity : 120.0...122.0 1000 : (118.0...124.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 10.50

rpm : 1265...1285

2nd rack travel in: 4.00

Speed rpm : 1385...1395

4th rack travel in: 1550

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 5.4

Testing:

Speed : 100 rpm

Minimum rack trave: 9.00

: 350 Speed rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

: 300...450 Speed rpm

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 800

Pressure hPa : 210

: 9.40...9.50 Rack travel mm

Measurement

Speed 1/min: 800

1st pressure hPa : -

Rack travel in m: 8.50...8.60

2nd pressure hPa : 460

Rack travel in m: 10.70...11.00

3rd pressure hPa : 900

Rack travel in m: 11.40...11.50

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 1200 Speed rpm

Del.quantity cm3/: 115.0...119.0 1000 s: (113.0...121.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

H23

rpm : 800

Del.quantity cm3/: 71.5...73.5 1000 s: (69.5...75.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

: IHC #1815519091

Set shutoff stop 1.5...2.0 mm before

shutoff.

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Note remarks

Test sheet : IHC 7,6 X 2 Edition : 24.04.91 : 28.09.90 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 244

Injection pump

Pump designation : PES6MW100/320RS1189

: 0 413 406 177 EP type number

Governor

: RQV350...1200MW46-26 : 0 420 083 206 Governor design.

Governer no.

Customer-spec. information Customer : NAVISTAR

Engine : DTA-466

1st version kW : 201.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 16.5...16.7

100 s: (16.3...16.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed

Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed travel mm : 9.80...10.20

rpm : 1250 2nd speed

: 7.90...8.10 travel mm

: 550 3rd speed rom

travel mm : 3.10...3.70

: 350 4th speed rpm

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

Del.quantity : 165.0...167.0

1000 : (163.0...169.0)

: 3.50 Spread cm3

1000 : (6,00)

RATED SPEED

1st version

Control Lever position degrees: 102...110 Testina: 1st rack travel in: 13.10 rpm : 1270...1290 Speed 2nd rack travel in: 4.00 Speed rpm : 1430...1440 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 66...74
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.3 Testina: Speed : 100 COM Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 5.20...5.40 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.70 Torque control curve - 1st version 1st speed rpm : 800 Rack travel in m: 14.70...14.80 2nd speed rpm : 1200 Rack travel in m: 14.00...14.10 3rd speed rpm : 1050 Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : Pressure Rack travel mm : 9.20...9.30 Measurement 1/min: 500 Speed 1st pressure hPa : 275 Rack travel in m: 10.60...10.70 2nd pressure hPa : 585 Rack travel in m: 13.00...13.40 3rd pressure hPa : 1200 Rack travel in m: 14.70...14.80 START CUT-OUT

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200

Speed rpm : 1200
Del.quantity cm3/ : 144.5...148.5
1000 s: (142.5...150.5)
Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 65.0...67.0 1000 s: (63.0...69.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10

rom : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...190.0 1000 s: (147.0...193.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50

Spread 1000 s: (5.50)

Remarks:

: IHC #1815520C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

1/min : 280 (290) Speed

H25

Note remarks

: IHC 7,7 A : 24.04.91 Test sheet Edition : 17.10.90 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 245

Injection pump

Pump designation : PES6MW100/320RS1204

EP type number : 0 413 406 192

Governor

Governor design. : RQV350...1350MW46-27

: 0 420 083 207 Governer no.

Customer-spec. information Customer : NAVISTAR

: DTA-360 Engine

1st version kW : 138.0 : 2700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 10.9...11.1

100 s: (10.7...11.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 14501st speed

: 8.20...8.60 travel mm : 1350 2nd speed rpm

travel mm 7.40...7.60

3rd speed : 500 rpm

travel mm 2.50...3.10

4th speed 350 rpm

1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 900

Del.quantity 1000 : 109.5...111.5 : (107.5...113.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 104...112 Testing: 1st rack travel in: 9.60 rpm : 1415...1435 Speed 2nd rack travel in: 4.00 rpm : 1510...1520 Speed 4th rack travel in: 1600 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 72...80 Setting point w/out bumper spring mom . Rack travel in mm: 5.3 Testina: : 100 Speed rom Minimum rack trave: 9.00 : 350 rpm Speed Rack travel in mm : 5.20...5.40 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rom hPa : -Pressure Rack travel mm : 8.40...8.50 Measurement 1/min: 500 Speed 1st pressure hPa : 210 Rack travel in m: 8.90...9.00 2nd pressure hPa : 410 Rack travel in m: 10.00...10.40 3rd pressure hPa : 900 Rack travel in m: 10.60...10.70 START CUT-OUT 1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 1350 non Del.quantity cm3/: 105.0...109.0 1000 s: (103.0...111.0)

cm3 : 5.00 1000 s: (7.0) Spread Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 64.0...66.0 1000 s: (62.0...68.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.60 Speed rpm : 1415...1435

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0) Rack travel in mm: 13.00...14.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) : 3.50 Spread cm31000 s: (5.50)

Remarks:

: IHC #1815516C91 Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : PER 10,0 S Test sheet Edition : 24.04.91 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 250 Injection pump Pump designation : PES6MW100/320RS1194 EP type number : 0 413 406 186 Governor Governor design. : RQV300...1300MW108K : 0 420 083 998 Governer no. Customer-spec. information Customer : PERKINS Engine : 180 TI : 134.0 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.30...3.40 : (3.25...3.45) Rack travel in mm : 12.00...14.00 Firing order : 1-5-3-6-2-4 Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rom: 1300Rack travel in mm : 14.30...14.40 Del.quantity cm3/: 13.4...13.6 100 s: (13.2...13.8) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 10.00...10.40 travel mm 2nd speed rpm : 900 travel mm : 6.40...6.60 3rd speed : 480 rpm : 3.10...3.70 travel mm : 300 4th speed rpm : 1.40...1.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1380 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300Speed Aneroid pressure h: 900 Del.quantity : 134.0....38.0)

cm3 : 3.50Spread 1000 : (6.00) RATED SPEED 1st version Control lever START CUT-OUT position degrees: 118...126 Testina: 1st rack travel in: 13.30 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1480...1510 4th rack travel in: 1600 1st version rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever Spread position degrees: 70...78 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 6.2 Testing: Speed rpm : 200 Minimum rack trave: 7.50 rpm : 300 Rack travel in mm : 6.10...6.30 CONSTANT REGULATION BREAKAWAY Speed rom : 330...500 1st version TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 14.30...14.40 Speed rpm : 800 2nd speed Rack travel in m: 13.10...13.30 3rd speed rpm : 500 Rack travel in m: 11.70...11.90 4th speed rpm : 1000 Speed Rack travel in m: 13.60...13.90 5th speed rpm : 700 Rack travel in m: 12.60...12.90 Aneroid/Altitude LOW IDLE Compensator Test 1st version Setting : 500 Speed rom hPa : -Pressure : 9.90,...10.00 Rack travel mm Remarks: Measurement 1/min: 500 Speed 1st pressure hPa : 180

Rack travel in m: 10.40...10.50 2nd pressure hPa : 220 Rack travel in m: 10.90...11.20 3rd pressure hPa : 900 Rack travel in m: 11.70...11.90 Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS Aneroid pressure h: 900 Speed rpm : 800 Del.quantity cm3/ : 126.0...129.0 1000 s: (123.5...131.5) cm3 : 5.001000 s: (7.0) Aneroid pressure h: 900 Speed rpm : 500 Del.quantity cm3/: 107.5...110.5 1000 s: (105.0...113.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0 1000 s: (75.0...81.0) 1mm rack travel less than full load rack tr: 13.30 rpm : 1340...1350 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0) Rack travel in mm : 19.00...21.00 Start-of-delivery blocking 46.5° before start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 X 1 : 24.04.91 : 28.09.90 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 255 Injection pump Pump designation : PES6NW100/320RS1189 EP type number : 0 413 406 177 Governor Governor design. : RQV350...1200MW46-30 Governer no. : 0 420 083 218 Customer-spec. information Customer : NAVISTAR Engine : DTA-466 : 201.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 101 Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

1st version

: 3.25...3.35 Prestroke mm (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 14.50...14.60 Del.quantity cm3/: 16.1...16.3 100 s: (15.9...16.5) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 350.0Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.80...10.20 travel mm rpm : 1250 2nd speed 7.90...8.10 travel mm 3rd speed rpm : 550 3.10...3.70 350 travel nm 4th speed rom : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 1200 Del.quantity : 101.0...165.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 13.10

Speed rpm: 1270...1290 2nd rack travel in: 4.00

Speed rpm : 1430...1440 4th rack travel in: 1550

Sceed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

rpm : 350

Rack travel in mm: 5.3

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

Speed rpm : 350 Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 800

Rack travel in m: 14.50...14.60 2nd speed rpm : 1200 Rack travel in m: 14.10...14.20

3rd speed rpm : 1050

Rack travel in m: 14.30...14.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rom

hPa : Pressure

: 10.20...10.30 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 260

Rack travel in m: 11.00...11.10

2nd pressure hPa : 650

Rack travel in m: 13.20...13.50 3rd pressure hPa : 1200 Rack travel in m: 14.50...14.60

START CUT-OUT

1/min: 280 (290) Speed

104

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 1200 Del.quantity cm3/ : 146.0...150.0 1000 s: (144.0...152.0)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 82.0...84.0

1000 s: (80.0...86.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm

Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: IHC #1816731C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 W 7 Edition : 24.04.91 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 256 Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 Governor Governor design.: RQV350...1200M446-38 : 0 420 083 219 Governer no. Customer-spec. information Customer : NAVISTAR : DTA-466 Engine 1st version kW : 164.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening . pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 11.90...12.00 Del.guantity cm3/: 12.7...12.9 100 s: (12.5...13.1) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0
Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.80...10.20 travel mm rpm : 1250 2nd speed : 7.90...8.10 : 550 travel mm 3rd speed rpm travel mm : 3.10...3.70 : 350 4th speed rpm travel mm : 1.30...1.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed Aneroid pressure h: 900 : 127.5...129.5 Del.quantity 1000 : (125.5...131.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 11.00

Speed rpm : 1285...1305

2nd rack travel in: 4.00

rpm : 1405...1415 Speed

4th rack travel in: 1550

Speed rom : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.3

Testing:

rpm : 100 Speed

Minimum rack trave: 9.00

rpm : 350 Speed Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500

Pressure hPa : -

Rack travel mm : 9.60...9.70

Measurement

1/min: 500 Speed

1st pressure hPa : 235 Rack travel in m: 10.10...10.20

2nd pressure hPa : 485 Rack travel in m: 11.10...11.50

3rd pressure hPa : 900

Rack travel in m: 11.90...12.00

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

rpm : 1200 Speed

Del.quantity cm3/: 125.0...129.0

1000 s: (123.0...131.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

J06

Speed rom : 500

Del.quantity cm3/: 81.5...83.5 1000 s: (79.5...83.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1285...1305

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: IHC #1816729C91

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

Test sheet : IHC 7,6 W 2 : 24.04.91 Edition Replaces : 17.09.90 Test oil : ISO-4113

Combination no. : 0 403 446 262

Injection pump

Pump designation : PES6MW100/320RS1198

: 0 413 406 188 EP type number

Governor

: RQV350...1200Mw46-33 Governor design.

Governer no. : 0 420 083 226

Customer-spec. information Customer : NAVISTAR

Engine : DTA-466

1st version kW : 172.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

_rpm : 1450 1st speed

: 9.80...10.20 travel mm

: 1250 2nd speed rpm

: 7.80...8.10 travel mm

3rd speed : 550 rpm

: 3.10...3.70 travel mm

: 350 4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed : 800 rom

Aneroid pressure h: 900

Del.quantity : 131.0...133.0 1000 : (129.0...135.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 11.10

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

rpm : 1405...1415 Speed

4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

rpm Rack travel in mm : 5.3

Testina:

Speed rom : 100

Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

Pressure hPa : -

Rack travel mm : 9.10...9.20

Measurement

Speed 1/min: 500

1st pressure hPa : 200

Rack travel in m: 9.70...9.80

2nd pressure hPa : 575

Rack travel in m: 11.40...11.80 3rd pressure hPa : 900

Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 1200 rpm

Del.quantity cm3/: 128.5...132.5 1000 s: (126.5...134.5)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

108

Speed rpm : 500 Del.quantity cm3/ : 72.0...74.0 1000 s: (70.0...76.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: IHC #1817194C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 W 3 : 24.04.91 Test sheet Edition : 17.09.90 Replaces : ISO-4113 Test oil : 0 403 446 263 Combination no. Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 Governor Governor design. : RQV350...1200MW46-34 Governer no. : 0 420 083 227 Customer-spec. information Customer : NAVISTAR : DTA-466 Engine : 172.0 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values

: 3.25...3.35 Prestroke mm : (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 13.1...13.3 100 s: (12.9...13.5) Spread cm3 : 0.3100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.80...10.20 travel mm rpm : 1250 2nd speed travel mm : 7.90...8.10 : 550 3rd speed rpm : 3.10...3.70 rpm : 350 travel mm 4th speed : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 900 : 131.0...133.0 Del.quantity 1000 : (129.0...135.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version

Control lever

position degrees: 98...106

per values

Test pressure, bar: 30...32

Insp. values in parentheses

Set equal delivery quant.

Testing:

1st rack travel in: 11.10

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

: 1405...1415 Speed rpm

4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.3

Testing:

Speed rpm : 100

Minimum rack trave: 9.00

rom : 350

Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm

Pressure hPa : ~

: 9.10...9.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 250 Rack travel in m: 10.00...10.10 2nd pressure hPa : 575

Rack travel in m: 11.20...11.60

3rd pressure hPa : 900

Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1200 Del.quantity cm3/ : 128.5...132.5

1000 s: (126.5...134.5)

cm3 : 6.50Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 74.5...76.5 1000 s: (72.5...78.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: 1HC #1817193C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

: MB 6.1 E : 03.05.91 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 275

Injection pump

Pump designation : PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design. : RQV300...1300MW50-12

: 0 420 083 237 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

1st version kW : 156.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL.

1st speed rpm : 1450

: 9.40...10.00 travel mm

2nd speed : 1350 rpm

travel mm : 8.50...8.70

3rd speed : 450 rpm

travel mm : 2.40...3.00

: 300 4th speed rpm

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1340 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000 Del.quantity : 108.0...110.0

1000 : (106.0...112.0) : 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

J11

1st version Control lever position degrees: 110...118 Testina: 1st rack travel in: 12.90 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1460...1490 Speed 4th rack travel in: 1530 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring rpm Rack travel in mm: 6.5 Testing: Speed rom . : 100 Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.40...6.60 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : -Pressure Rack travel mm : 10.30...10.40 Measurement 1/min: 500 Speed 1st pressure hPa : 450 Rack travel in m: 11.10...11.30 2nd pressure hPa : 600 Rack travel in m: 12.50...12.70 3rd pressure hPa : 1000 Rack travel in m: 13.90...14.00 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS

cm3 : 5.00 1000 s: (7.0) Spread Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 36.0...38.0 1000 s: (34.0...40.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.40...6.60 Del.quantity cm3/ : 9.0...13.0 1000 s: (6.5...15.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

1st version
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 98.0...102.0
1000 s: (96.0...104.0)

Note remarks

Test sheet : MB 6,1 D 2 Edition : 26.04.91 Replaces : 18.02.91

Test oil : ISO-4113

Combination no. : 0 403 446 276

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number : 0 413 406 123

Governor

Governor design. : RQV300...1200MW50-18

Governer no. : 0 420 083 243

Customer spec. information Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 115.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6) Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250 travel mm : 7.40...7

travel mm : 7.40...7.80 2nd speed rpm : 880

travel mm : 4.90...5.10 3rd speed rpm : 500

travel mm : 2.70...3.10

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 700

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 107...115 1st version Testina: 1st rack travel in: 9.20 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/ : 78.0...81.0 1000 s: (75.5...83.5) Speed rpm : 1335...1365 4th rack travel in: 1450 Spread cm3 : 5.00 1000 s: (7.0) Speed rpm : 0.00...1.00 Aneroid pressure h: rpm : 500 LOW IDLE 1 Speed Del.quantity cm3/: 44.0...46.0 1000 s: (42.0...48.0) Control lever position degrees: 73...81 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.7 BREAKAWAY Testing: 1st version Speed 1mm rack travel less than ; 200 rpm Minimum rack trave: 7.50 rpm : 300 full load rack tr: 9.20 Speed Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.00 rpm : 1240...1250 Speed Speed rpm : 410...470 STARTING FUEL DELIVERY TORQUE CONTROL Dimension a mm : 0.80 Speed : 100 rpm Del.quantity cm3/: 78.0...88.0 Torque control curve - 1st version rpm : 1200 1000 s: (75.0...91.0) 1st speed Rack travel in m: 10.20...10.30 rpm : 600 LOW IDLE 2nd speed Rack travel in m: 10.90...11.00 rpm : 300 3rd speed rpm : 1100 Speed Rack travel in m: 10.30...10.60 Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 Aneroid/Altitude Compensator Test 1000 s: (5.50) Remarks: 1st version Setting rpm : 500 hPa : 200 Speed rpm Pressure Rack travel mm : 8.90...9.00 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 8.60...8.70 2nd pressure hPa : 350 Rack travel in m: 10.20...10.50 3rd pressure hPa : 700 Rack travel in m: 10.90...11.00 START CUT-OUT 1/min : 200 (230) Speed

J14

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,1 D 4 : 26.04.91 : 19.03.91 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 278 Injection pump Pump designation : PES6MW100/720RS1131 EP type number : 0 413 406 123 Governor Governor design. : RQV300...1300MW50-17 Governer no. : 0 420 083 244 Customer-spec. information Customer : MB-NFZ Engine : OM 366 LA : 150.0 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 12.20...12.30 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1500 9.80...10.20 travel mm 1350 2nd speed rom : travel mm : 8.40...8.60 rpm : 670 3rd speed : 4.60...5.20 travel mm rpm : 300 4th speed travel mm : 1.10...1.50 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1370 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 700 Del.quantity : 90.3....0.5) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.70...3.80 : (3.65...3.85)

1st version Control lever position degrees: 107...115 Testing: 1st rack travel in: 11.20 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1490 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 55...63 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: rpm : 100 Speed Minimum rack trave: 7.60 rpm : 300 Rack travel in mm : 6.10...6.30 CONSTANT REGULATION Speed rpm : 350...550 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : Rack travel mm : 10.20...10.30 Measurement Speed 1/min : 500 1st pressure hPa : 170 Rack travel in m: 10.90...11.00 2nd pressure hPa : 225 Rack travel in m: 11.90...12.20 3rd pressure hPa : 700 Rack travel in m: 12.20...12.30 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 575 Del.quantity cm3/ : 82.0...85.0

1000 s: (79.5...87.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 50.5...52.5 1000 s: (48.5...54.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rom : 100 Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0,..15.0) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Note remarks

: MB 6,1 B 4 : 24.04.91 Test sheet Edition : 22.03.91 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 280

Injection pump

Pump designation : PES6MW100/720RS1131-

: 0 413 406 165 EP type number

Governor

Governor design. : RQV300...1300MW50-19

Governer no. : 0 420 083 245

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

1st version kW : 155.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.60...3.70 Prestroke mm

: (3.55...3.75)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.10...13.20

Del.guantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450 9.50...9.90 travel mm rpm : 1350 2nd speed : 8.40...8.60 travel mm

3rd speed rpm : 600 : 3.90...4.50 travel mm

: 300 4th speed rpm : 0.80...1.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1350 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 1000

: 98.0...100.0 Del.quantity 1000 : (96.0...102.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 114...122 Testina: 1st rack travel in: 12.10 rpm : 1345...1355 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1490 4th rack travel in: 1600 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 76...84 Setting point w/out bumper spring : 300 Speed rpm Rack travel in mm: 6.5 Testina: Speed וווסח : 200 Minimum rack trave: 8.00 : 300 rpm Rack travel in mm : 6.40...6.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : -Rack travel mm : 10.30...10.40 Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.20...11.30 2nd pressure hPa : 350 Rack travel in m: 12.40...12.70 3rd pressure hPa : 1000 Rack travel in m: 13.10...13.20 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 750 Speed rpm Del.quantity cm3/: 87.0...91.0 1000 s: (85.0...93.0) cm3 : 5.00 Spread 1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 36.0...38.0 1000 s: (34.0...40.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 1345...1355 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.40...6.60
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

•

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 W 8 : 26.04.91 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 446 282 Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 Governor Governor design.: RQV350...1200MW46-39 : 0 420 083 246 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 186.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 101 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test Lines : 1 680 750 008 Outside diameter

x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _ BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 800 1st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 13.0...13.2 100 s: (12.8...13.4) Spread cm3 : 0.3100 s: (0.6) rpm : 350.02nd speed Rack travel in mm : 5.2...5.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1450 travel mm : 9.80...10.20 2nd speed rpm : 1250 travel mm : 7.90...8.10 3rd speed rpm : 550 : 3.10...3.70 travel mm 4th speed : 350 rpm travel mm : 1.30...1.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 1200 : 130.0...132.0 Del.quantity 1000 : (128.0...134.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 11.50

: 1270...1290 Speed ripm

2nd rack travel in: 4.00

: 1400...1410 Speed rom

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.3

Testing:

Speed : 100 nom

Minimum rack trave: 9.00 Speed

rpm : 350 Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude

Compensator Test

1st version

Settina

Speed : 500 rpm

Pressure hPa

Rack travel : 9.10...9.20 mm

Measurement

Speed 1/min: 500

1st pressure hPa : 225

Rack travel in m: 9.80...9.90

2nd pressure hPa : 490

Rack travel in m: 11.20...11.60

3rd pressure hPa : 1200 Rack travel in m: 12.10...12.20

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 1200 Speed

Del.quantity cm3/: 128.5...132.5

1000 s: (126.5...134.5)

Spread

cm3 : 6.501000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 69.5...71.5 1000 s: (67.5...73.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50

Speed : 1270...1290 rpm

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 150.0...190.0 1000 s: (145.0...195.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: IHC #1817695C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

Test sheet : IHC 7,6 W 7 Edition : 24.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 283

Injection pump

Pump designation : PES6MW100/320RS/198

EP type number : 0 413 406 188

Governor

Governor design. : RQV350...1200MW46-40

Governer no. : 0 420 083 247

Customer-spec. information Customer : NAVISTAR

: DTA-466 Engine

1st version kW : 186.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening 1

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 3.3...13.5

100 s: (13.1...13.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm : 5.2...5.4 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

: 9.80...10.20 travel mm

2nd speed : 1250 rpm

7.90...8.10 travel mm

3rd speed : 550 rpm

: 3.10...3.70 travel mm

: 350 4th speed rpm

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

: 133.5...135.5 : (131.5...137.5) : 3.50 Del.quantity 1000

cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testina:

1st rack travel in: 11.50

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

: 1400...1410 Speed rpm

4th rack travel in: 1500

Speed rom : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 70...78 Setting point w/out bumper spring

rpm Rack travel in mm : 5.3

Testina:

Speed rom Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed rpm

hPa : -Pressure

Rack travel mm : 9.00...9.10

Measurement

1/min : 500 Speed

1st pressure hPa : 335 Rack travel in m: 10.00...10.10

2nd pressure hPa : 645 Rack travel in m: 11.40...11.80

3rd pressure hPa : 1200

Rack travel in m: 12.50...12.60

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 1200
Del.quantity cm3/ : 132.0...136.0
1000 s: (130.0...138.0)

cm3 : 6.50Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 68.0...70.0 1000 s: (66.0...72.0)

BREAKAWAY

1st version

imm rack travel less than

full load rack tr: 11.50

Speed : 1270...1290 rom

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 150.0...190.0 1000 s: (145.0...195.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/: 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: IHC #1817695091

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

J22

Note remarks

Test sheet : RVI 6,2 J Edition : 26.04.91

Replaces

Test oil : ISO-4113

: D 403 446 285 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1214

EP type number : 0 413 406 204

Governor

Governor design. : RQV275...1250MW115K

: 0 420 083 994 Governer no.

Customer-spec, information

Customer : RVT

Engine : MIDR 060226 W

: 151.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 172...175 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30 : (4.15...4.35)

Rack travel in mm : 16.50...19.50

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 275.0
Rack travel in mm : 4.50...4.70
Del.quantity cm3/ : 2.0...2.4
100 s: (1.7...2.6)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1360 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1000

: 114.0...116.0 Del.quantity

1000 : (112.0...118.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 114...122

Testing:

1st rack travel in: 11.00 Speed rpm : 1320...1340

2nd rack travel in: 4.00

: 1430...1470 Speed rom

4th rack travel in: 1600

rom : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 60...68 Setting point w/out bumper spring Speed rpm : 275 Rack travel in mm : 7.4 Testing: Speed rpm : 200 Minimum rack trave: 5.00 rpm : 275 Rack travel in mm : 4.50...4.70 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 2nd speed rpm : 700 Rack travel in m: 11.10...11.20 3rd speed rpm : 1000 Rack travel in m: 11.30...11.50 4th speed rpm : 500 Rack travel in m: 10.50...10.70 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure Rack travel mm : 12.00...12.10 Measurement Speed 1/min : 500 1st pressure hPa : -Rack travel in m: 8.90...9.00 2nd pressure hPa : 200 Rack travel in m: 9.30...9.60 3rd pressure hPa : 320 Rack travel in m: 10.20...10.30 START CUT-OUT 1/min : 200 (220) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 107.5...110.5 1000 s: (105.0...113.0) cm3 : 5.00 Spread 1000 s: (7.0)

Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/ : 70.5...72.5
1000 s: (68.5...74.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1320...1340 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 88.0...102.0 1000 s: (85.0...105.0) Rack travel in mm : 19.50...21.00 LOW IDLE Speed rpm : 275 Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3: 3.50 1000 s: (5.00) Remarks:

y y **Fehlenden text übersetzen** y y

J24

Note remarks

Test sheet : RVI 6,2 K Edition : 26.04.91

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 286

Injection pump

Pump designation : PES6MW100/320RS1216

EP type number : 0 413 406 206

Governor

Governor design. : RQV350...1175MW113-2

Governer no. : 0 420 083 248

Customer-spec. information Customer : RVI

Engine : MIDR 060226 X

: 166.0 1st version kW Rated speed : 2350

TEST BENCH REQUIREMENTS

Test cil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 172...175 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30

: (4.15.,.4.35)

Rack travel in mm : 11.50...14.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1175

Del.quantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 275.0 Rack travel in mm : 7.3...7.5

Del.quantity cm3/: 2.0...2.4

100 s: (1.7...2.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1360 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h: 1000

Del.quantity : 177.0...121.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 114...122

Testing:

Spread

1st rack travel in: 11.00

rpm : 1250...1260 Speed

2nd rack travel in: 4.00

rpm : 1415...1455 Speed

4th rack travel in: 1600

: 0.00...1.00 Speed rom

LOW IDLE 1 Control lever

position degrees: 60...68 Setting point w/out bumper spring

: 275 rpm Rack travel in mm: 7.4

Testina:

Speed : 200 rpm Minimum rack trave: 6.00

Speed rpm : 275 Rack travel in mm : 4.50...4.70

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Pressure hPa : 1000

Rack travel mm : 11.90...12.00

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 6.70...6.80

2nd pressure hPa : 240 Rack travel in m: 7.80...8.10 3rd pressure hPa : 600

Rack travel in m: 11.50...11.60

START CUT-OUT

1/min: 260 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 700 Speed

Del.quantity cm3/: 124.0...127.0 1000 s: (121.5...129.5)

cm3 : 5.00

Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 60.0...62.0 1000 s: (58.0...64.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1250...1260 Speed

J26

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 88.0...102.0 1000 s: (85.0...105.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275 Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5)

cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

FEHLENDEN TEXT ÜBERSETZEN

Note remarks

: MAN 7,2 V 1 : 24.04.91 Test sheet Edition : 18.02.91 Replaces Test oil : ISO-4113

Combination no. : 0 403 456 114

Injection pump

Pump designation : PES6MW100/321RS1201 : 0 413 406 190 EP type number

Governor

Governor design. : RQV250...1200MW83-2

: 0 420 083 216 Governer no.

Customer-spec. information Customer : MAN

Engine : D 0826 LF02

1st version kW : 169.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 13.7...13.9

100 s: (13.5...14.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 250.02nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

10.50...10.60 travel mm

2nd speed rpm : 810

travel mm : 5.90...6.10

500 3rd speed rpm :

: 3.70...4.30 travel mm

rpm : 250 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1300 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 1000

: 137.0...139.0 Del.quantity

1000 : (135.0...141.0) cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 120...128 Testing: 1st rack travel in: 11.50 : 1245...1260 Speed rpa 2nd rack travel in: 4.00 : 1320...1350 Speed rom 4th rack travel in: 1400 npm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3 Testing: Speed rpm : 100 Minimum rack trave: 7.00 rpm Rack travel in mm : 5.20...5.40 CONSTANT REGULATION Speed riom : 330...420 Ameroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 170 : 10.30...10.40 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 550
Rack travel in m: 12.10...12.40
3rd pressure hPa : 1000
Rack travel in m: 12.50...12.60 START CUT-OUT Speed 1/min: 170 (200) FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 135.0...138.0 1000 s: (132.5...140.5) Spread cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: 1000 Speed : 800 rpm Del.quantity cm3/: 138.0...141.0 1000 s: (135.5...143.5) Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity cm3/: 136.0...139.0 1000 s: (133.5...141.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rpm : 1245...1260 STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE Speed rpm : 250 Rack travel in mm : 5.20...5.40 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: : MAN #3-7135

Start-of-delivery mark is at start of delivery of cylinder 1

Speed

1st version

Aneroid pressure h: 1000

rpm : 600

Note remarks

: CUM 8,3 Q : 26.04.91 : 29.06.90 Test sheet Edition Replaces Test oil : ISO-4113

: 0 403 466 123 Combination no.

Injection pump

Pump designation : PES6MW100/120RS1137-

EP type number

: 0 413 406 180

Governor

: RSV500...1250MW2A319 Governor design.

-16

: 0 420 085 130 Governer no.

Customer-spec. information Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 171.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening 1 4 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

K01

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 9.4...9.6 Del.quantity cm3/ : 5.1...5.5

100 s: (4.9...5.8)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 131.0...133.0 Del.quantity

: (129.0...135.0) 1000

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Setting point:

Speed : 800 mom Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.60

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

rpm : 1360...1370 Speed

3rd rack travel in: 4.00

Speed rpm : 1360...1390 4th rack travel in: 1550 Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Lbu : 500 Rack travel in mm: 9.0

Testing:

Speed : 100 rom

Minimum rack trave: 19.00

rpm : 500 Speed Rack travel in mm : 8,90...9.10

Rack travel in mm : 2.00

rpm : 540...600 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 123.5...126.5 1000 s: (121.0...129.0) Spread cm3 : 5.00 1000 s: (7.0)

BREAKAWAY

1st version

imm rack travel less than

full load rack tr: 11.60

Speed : 1320...1330 rpm

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500 Rack travel in mm : 9.40...9.60

K02

Del.quantity cm3/: 51.5...55.5

1000 s: (49.0...58.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: CUM #3918357

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Note remarks

Test sheet : MB 6,0 H 1 : 24.04.91 : 30.03.90 Edition Replaces Test oil : ISO-4113

Combination no. : 0 403 476 080

Injection pump

Pump designation : PES6MW100/720RS1191

EP type number : 0 413 406 179

Governor

Governor design. : RSV350...1300Mw0A329

: 0 420 085 136 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 LA

: 170.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 0.9...1.3 100 s: (0.6...1.5) Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1000

1000 : (110.0...116.0) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 105...113

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

K03

1st rack travel in: 13.00 rpm : 1330...1340 Speed 2nd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1550 rpm : 0.30...1.70Speed LOW IDLE 1 Control Lever position degrees: 75...83 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 6.00...6.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : Pressure Rack travel mm : 10.10...10.20 Measurement Speed $1/\min : 500$ 1st pressure hPa : 350 Rack travel in m: 11.30...11.40 2nd pressure hPa : 500 Rack travel in m: 12.40...12.70 3rd pressure hPa : 1000 Rack travel in m: 14.00...14.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/: 101.0...104.0 1000 s: (98.5...106.5) : 5.00 Spread cm31000 s: (7.0) Aneroid pressure h: -

rpm : 500

Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

1st version 1mm rack travel less than full load rack tr: 13.00 Speed rpm : 1330...1340 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE rpm : 350 Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) cm3 : 3.50Spread 1000 s: (5.00) Remarks: Test hydr. locking device for starting with 500...1000 hPa air pressure.

Speed

Note remarks

: FOR 6,6 q : 08.05.91 Test sheet Edition : 16.1.91 Replaces Test oil : ISO-4113

Combination no. : 9 400 085 331

Injection pump

Pump designation : PES6A95D410RS2800 : 9 400 084 024 EP type number

Governor

Governor design. : RQV375...1400AB1257L

Governer no. : 9 420 080 299

Customer-spec. information : FNH Customer

: 6.6 L - NA Engine

: 108.9 1st version kW Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.15...3.25 Prestroke mm : (3.10...3.30)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 10.70...10.80

Del.guantity cm3/: 7.8...8.0

100 s: (7.6...8.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 375.0 2nd speed

Rack travel in mm: 6.3...6.5 Del.guantity cm3/: 0.4...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1420 1st speed

: 8.50...8.60 travel mm

2nd speed

rpm : 350 : 1.30...1.60 travel mm

3rd speed rpm : 700

: 4.20...4.60 travel mm

rpm : 1100 4th speed

: 6.10...6.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1400 Speed

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 78.0...80.0 1000 : (76.0...82.0)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version Control Lever

position degrees: 114...122

Testina:

1st rack travel in: 9.70

rpm : 1450...1460 Speed

2nd rack travel in: 4.00

rpm : 1540...1570 Speed

4th rack travel in: 1700

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 67...75

Testina:

Speed rpm : 100 Minimum rack trave: 9.50

Speed rpm: 375 Rack travel in mm: 6.30...6.50

CONSTANT REGULATION

rpm : 460...530 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

rpm : 1400 1st speed

Rack travel in m: 10.70...10.80

rpm : 500 2nd speed

Rack travel in m: 11.20...11.30

rpm : 900 3rd speed

Rack travel in m: 11.20...11.30 th speed rpm : 1150

4th speed

Rack travel in m: 11.00...11.10

START CUT-OUT

1/min : 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 500 Speed

Del.quantity cm3/: 63.0...66.0

1000 s: (60.5...68.5)

Speed rpm: 900 Del.quantity cm3/: 74.5...77.5

1000 s: (72.0...80.0)

: 1150 Speed man

Del.quantity cm3/: 76.0...79.0 1000 s: (73.5...76.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 115.0...129.0 1000 s: (112.0...132.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm

Rack travel in mm : 6.30...6.50

Del.quantity cm3/ : 4.5...10.5

1000 s: (3.0...12.0) cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

: MB 6.0 i 3 : 08.05.91 Test sheet Edition Replaces : 9.4.91 Test oil : ISO-4113

Combination no. : 9 400 087 429

Injection pump

Pump designation : PES6P120A720RS3256-1

EP type number : 9 400 087 077

Governor

Governor design. : RQV300...1300PA963

: 9 420 080 283 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 366 LA Engine

1st version kW : 156.6 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm : (4.25...4.45)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 15.7...15.9

100 s: (15.4...16.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0Rack travel in mm: 8.6...8.9

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.70 travel mm

2nd speed rpm : 650

: 3.80...4.30 rpm : 1060 travel mm

3rd speed

: 5.60...6.10 : 1358 travel mm

4th speed rpm

travel mm : 8.20...8.70

5th speed rpm : 1461

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1300 Speed Aneroid pressure h: 1000 Del.quantity : 157.0...159.0 1000 : (154.0...162.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 11.90 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1420...1450 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 86...94 Testing: Speed : 200 r pm Minimum rack trave: 10.20 rpm : 300 Rack travel in mm : 8.80...9.20 CONSTANT REGULATION Speed rpm : 300...450 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1000 Pressure Rack travel mm : 12.90...13.10 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 10.60...10.90 2nd pressure hPa : 300 Rack travel in m: 11.10...11.30 3rd pressure hPa : 500 Rack travel in m: 12.10...12.30 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 : 800 Speed rpm Del.quantity cm3/: 142.0...146.0 1000 s: (139.0...149.0) cm3 : 8.00Spread 1000 s: (12.) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 65.0...67.0 1000 s: (62.0...70.0) Spread cm3: 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1340...1350 Speed STARTING FUEL DELIVERY

Remarks:

Speed

•

Del.quantity cm3/: 100.0...120.0 1000 s: (96.0...124.0)

rpm

: 100

Note remarks

: MB 6.0 i 4 : 08.05.91 Test sheet Edition : 9.4.91 Replaces Test oil : ISO-4113

Combination no. : 9 400 087 430

Injection pump

Pump designation : PES6P120A720RS3256-1

EP type number : 9 400 087 077

Governor

Governor design. : RQV300...1300PA963-1

: 9 420 080 284 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 366 LA

: 171.5 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina

pressure, bar : 207...210

Orifice plate

: 0,8 diameter mm

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm

: (4.25...4.45)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 18.0...18.2

100 s: (17.7...18.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 8.6...8.9

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed : 1.20...1.70 travel mm

2nd speed rpm : 650

: 3.80...4.30 travel mm

: 1060 3rd speed rpm

5.60...6.10 travel mm

: 1358 4th speed rpm

: 8.20...8.70 travel mm

: 1461 5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1300 Speed Aneroid pressure h: 1000 Del.quantity : 180.0...185.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 117...125 Testing: 1st rack travel in: 12.90 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 86...94 Testing: Speed rpm Minimum rack trave: 10.20 rpm : 300 Speed Rack travel in mm : 8.80...9.20 CONSTANT REGULATION Speed rpm : 300...450 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 man Pressure hPa : 1000 Rack travel mm : 13.90...14.10 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.90 2nd pressure hPa : 300 Rack travel in m: 11.10...11.30 3rd pressure hPa : 700 Rack travel in m: 13.00...13.20 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...120.0 1000 s: (96.0...124.0)

Remarks:

:

Note remarks

: MB 6.0 i 2 : 08.05.91 Test sheet Edition : 9.4.91 Replaces Test oil : ISO-4113

: 9 400 087 431 Combination no.

Injection pump

Pump designation : PES6P120A720RS3256

: 9 400 087 071 EP type number

Governor

Governor design. : RQV300...1300PA963-2

: 9 420 080 285 Governer no.

Customer-spec, information

: MERCEDES-BENZ Customer

Engine : OM 366 LA

1st version kW : 141.7 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40

: (4.25...4.45) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 13.4...13.6

100 s: (13.1...13.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm: 8.6...8.9

Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.20...1.70 travel mm 2nd speed : 650 rpm

: 3.80...4.30 travel mm

3rd speed : 1060 rpm

: 5.60...6.10 travel mm : 1358 4th speed

rpm

: 8.20...8.70 travel mm

5th speed rpm : 1461

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1300 Speed Aneroid pressure h: 1000 : 134.0...136.0 Del.quantity 1000 : (131.0...139.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 10.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1410...1440 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 86...94 Testing: Speed : 200 rpm Minimum rack trave: 10.20 Speed nom : 300 Rack travel in mm : 8.80...9.20 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1000 Pressure Rack travel mm : 11.60...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.90 2nd pressure hPa : 250 Rack travel in m: 10.80...11.00 3rd pressure hPa : 360 Rack travel in m: 11.30...11.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...110.0 1000 s: (86.0...114.0)

Remarks:

:

Note remarks

Test sheet : FOR 7,8 n 3 Edition : 08.05.91

Replaces

: ISO-4113 Test oil

Combination no. : 9 400 087 441

Injection pump

Pump designation : PES6P110A720RS3267

EP type number : 9 400 087 072

Governor

Governor design. : RSV650...1250P8A528-

: 9 420 082 328 Governer no.

Customer-spec. information : FORD FNH Customer

: 7.8 L Engine

: 140.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 9 401 087 403

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.25...4.35 Prestroke mm

: (4.20...4.30)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 13.2...13.4

100 s: (13.0...13.6)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 650.02nd speed

Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.5) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 132.0...134.0 : (130.0...136.0) Del.quantity

1000

: 5.00 cm3Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Testing:

1st rack travel in: 12.20 Speed rpm : 1260...1270 2nd rack travel in: 4.00 Speed rpm : 1300...1320 4th rack travel in: 1400 Speed rpm : 0.30...1.70 LOW IDLE 1 Control Lever position degrees: 73...81 Setting point w/out bumper spring Speed rpm : 650 Rack travel in mm: 6.0 Testing: Speed : 600 rpm Minimum rack trave: 10.00 rpm : 650 Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00 Speed : 685...745 rpm FUEL DELIVERY CHARACTERISTICS 1st version rpm : 800 Speed Del.quantity cm3/: 110.0...114.0 1000 s: (108.0...116.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1260...1270 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (131.0...159.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 650 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 8.0...12.0 1000 s: (5.5...15.5) Spread cm3: 3.50 1000 s: (5.50) Remarks:

Combine-harvester

APPLICATION

Note remarks

Test sheet : FOR 7,8 n 4 Edition : 08.05.91

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 442

Injection pump

Pump designation : PES6P110A720RS3267

: 9 400 087 072 EP type number

Governor

Governor design. : RSV650...1250P8A530-

Governer no. : 9 420 082 329

Customer-spec. information

Customer : FORD - FNH

: 7.8 1 Engine

1st version kW : 165.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 9 401 087 403

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.25...4.35 Prestroke mm : (4.20...4.40)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.50...13.60

Del.quantity cm3/: 13.7...13.9

100 s: (13.5...14.1)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 650.0 2nd speed

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.1...1.5

100 s: (0.8...1.7) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 1000

Aneroid E. Del.quantity 1000 : 137.0...139.0

: (135.0...141.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 99...107

Testing:

1st rack travel in: 12.50

rpm : 1260...1270 Speed

2nd rack travel in: 4.00

rpm : 1300...1320 Speed

4th rack travel in: 1400

rpm : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 73...81

Setting point w/out bumper spring

rpm : 650

Rack travel in mm: 6.0

Testing:

Speed : 600 rpm

Minimum rack trave: 10.00

Speed : 650 rpm

Rack travel in mm : 5.40...5.60

Rack travel in mm: 2.00

Speed : 685...745 rpm

Aneroid/Altitude

Compensator Test

1st version

Setting

: 1200 Speed man

hPa : 1000 Pressure

Rack travel mm : 13.50...13.60

Measurement

Speed 1/min: 1200

1st pressure hPa : -

Rack travel in m: 9.90...10.00

2nd pressure hPa : 600

Rack travel in m: 12.50...12.60

3rd pressure hPa : 400

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 800 Del.quantity cm3/ : 117.5...119.5 1000 s: (115.5...121.5)

Aneroid pressure h: -

: 1200 Speed rom

Del.quantity cm3/: 79.0...81.0

1000 s: (77.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.50

Speed rpm : 1260...1270

STARTING FUEL DELIVERY

LOW IDLE

rpm : 650Speed

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 11.0...15.0

1000 s: (8.5...17.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

Note remarks

: FOR 7,8 n 5 Test sheet Edition : 08.05.91

Replaces

Test oil : ISO-4113

: 9 400 087 443 Combination no.

Injection pump

Pump designation : PES6P110A720RS3267

: 9 400 087 072 EP type number

Governor

: RSV650...1250P8A530-Governor design.

: 9 420 082 330 Governer no.

Customer-spec. information

: FORD -FNH Customer

Engine : 7.8 l

1st version kW : 180.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 9 401 087 403

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.25...4.35 : (4.20...4.40) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 14.60...14.70

Del.quantity cm3/: 15.5...15.7

100 s: (15.3...15.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 650.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.1...1.5

100 s: (0.8...1.7)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 1000

Aneroid F. Del.quantity 1000 : 155.0...157.0

: (153.0...159.0)

cm3 : 5.00 Spread 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testina:

1st rack travel in: 13.60

rpm : 1260...1270

2nd rack travel in: 4.00

rpm : 1305...1325 Speed

4th rack travel in: 1400

rom : 0.30...1.70 Speed

LOW IDLE 1

Control lever

position degrees: 72...80

Setting point w/out bumper spring

Speed rpm : 650 Rack travel in mm : 6.0

Testing:

: 600 Speed rpm

Minimum rack trave: 10.00

Speed rom : 650

Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00

: 685...745 Speed rom

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 1200 rom Pressure hPa : 1000

Rack travel mm : 14.60...14.70

Measurement

1/min: 1200 Speed

1st pressure hPa : -

Rack travel in m: 11.50...11.60

2nd pressure hPa : 600

Rack travel in m: 14.00...14.10 3rd pressure hPa : 400

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed : 800 rpm

Del.quantity cm3/: 131.0...135.0 1000 s: (129.0...137.0)

Aneroid pressure h: -

: 1200 Speed rom

Del.quantity cm3/: 107.0...109.0

1000 s: (105.0...111.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.60

rpm : 1260...1270 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (131.0...159.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 11.0...15.0

1000 s: (8.5...17.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

Note remarks

: MB 6,0 i 5 : 08.05.91 Test sheet Edition Replaces : 9.4.91 Test oil : ISO-4113

Combination no. : 9 400 087 450

Injection pump

Pumo designation : PES6P120A720RS3256

: 9 400 087 071 EP type number

Governor

Governor design. : RQV300...1300PA978

: 9 420 080 296 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 366 LA Engine

: 126.8 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.30...4.40 Prestroke mm

: (4.25...4.45) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.80...11.90

Del.quantity cm3/: 13.8...14.0

100 s: (13.5...14.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0 Rack travel in mm : 8.6...8.9

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300 travel mm 1.20...1.70

650 2nd speed rpm

travel mm 3.80...4.30 1060 3rd speed man

5.60...6.10 travel mm

: 1358 4th speed rpm

: 8.20...8.70 travel mm

5th speed rpm : 1461

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1300 Speed Aneroid pressure h: 1000 : 138.0...140.0 Del.quantity 1000 : (135.0...143.0) cm3 : 5.00Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 114...122 Testing: 1st rack travel in: 10.80 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1410...1440 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 86...94 Testing: : 200 Speed rpm Minimum rack trave: 10.20 Speed rpm : 300 Rack travel in mm : 8.80...9.20 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure Rack travel mm : 11.80...12.00 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.40...10.70 2nd pressure hPa : 250 Rack travel in m: 10.60...10.80 3rd pressure hPa : 360 Rack travel in m: 11.10...11.30 START CUT-OUT

1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed : 800 rpm Del.quantity cm3/: 118.0...122.0 1000 s: (115.0...125.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: : 500 Speed rpm Del.quantity cm3/: 61.0...63.0 1000 s: (58.0...66.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 90.0...110.0 1000 s: (86.0...114.0)

Remarks:

K20

Speed

Note remarks

: IHC 9,0 f 3 Test sheet : 14.05.91 Edition Replaces : 14.10.87 Test oil : ISO-4113

Combination no. : 9 400 230 016

Injection pump

Pump designation : PES8A75D32ORS2463

Governor

Governor design. : RQV300...1500AB1059

DR

Customer-spec. information Customer : IHC

Engine : DV 550 C

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

Inlet press., bar: 2.5

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test Lines : 9 681 230 702

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Prestroke mm : 1.95...2.05 * : (1.90...2.10)

Rack travel in mm: 10.70

: 3.95...4.05 Prestroke mm

: (3.90...4.10)**

Rack travel in mm: 10.70

Firing order : 1-8-7-3-6-5-4-2 Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1500

Rack travel in mm : 10.65...10.75

Del.guantity cm3/: 6.8...6.9

100 s: (-)

cm3 : 0.2Spread

100 s: (-)

rpm : 300 2nd speed Rack travel in mm: 5.00

Del.quantity cm3/: 1.6...2.0 **

100 s: (~)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1600 Speed

Rack travel in mm : 15.00...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1500 Speed

: 68.0...69.0 Del.quantity

1000 : (64.5...70.5)

RATED SPEED

1st version

Control lever

position degrees: 64...72

Testing:

1st rack travel in: 9.70

rpm : 1600...1610 Speed

2nd rack travel in: 9...14

Speed rpm : 1700 3rd rack travel in: 3.00...9.50

: 1800 Speed rpm 4th rack travel in: 2000

: 0.00...1.00 Speed rpm

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed : 200 rom

Minimum rack trave: 8.20 rpm : 300

Rack travel in mm : 5.40...7.30 Rack travel in mm : 3.05

Speed : 450 rpm Speed rpm : 600 Maximum rack trave: 2.60 : 870 Speed rpm Rack travel in mm : ...0.1

START CUT-OUT

1/min: 150...230 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

Speed rpm : 1600...1610

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 112.0...135.0 1000 s: (-)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 17.0...21.0

Del.quantity cm3/: (-)

Remarks:

* = Cylinders 1,7,6 and 4

** = Cylinders 2,8,3 and 5

Note remarks

: DEE 7,6 j 5 : 13.05.91 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 046

Injection pump

Pump designation : PES6A95D41ORS2561 EP type number : 9 410 230 006

Governor

Governor design. : RSV600...1100A2C2048

: 9 420 234 157 Governer no.

Customer-spec, information Customer : JOHN DEERE

Engine : 6466T

1st version kW : 110.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 9.1...93

100 s: (8.9...9.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 600.0 Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 91.0...93.0 Del.quantity 1000 : (89.0...95.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testina:

1st rack travel in: 8.90

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

rpm : 600 Rack travel in mm: 4.6

Testing:

Speed rpm Minimum rack trave: 19.00 : 600 Speed rpm

Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 9.90...10.00

2nd speed rpm : 950

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rom

Del.quantity cm3/: 104.0...108.0 1000 s: (101.5...110.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 155.0...175.0 1000 s: (150.0...180.0)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200 Rack travel in mm : 4.70...4.90

LOW IDLE

: 600 rpm

Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: JOHN DEERE # RE28880

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

Note remarks

: DEE 7,6 j 4 : 13.05.91 Test sheet Edition : 14.1.88 Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 047

Injection pump

Pump designation : PES6A95D41ORS2561 EP type number : 9 410 230 006

Governor

: RSV600...1100A2C2049 Governor design.

-1L

: 9 420 234 158 Governer no.

Customer-spec. information : JOHN DEERE Customer

: 6466TH-02 Engine

: 125.0 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 10.7...10.9

100 s: (10.5...11.1)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 600.0 2nd speed

Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.2...1.6

100 s: (0.9...1.8) cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 107.0...109.0 1000 : (105.0...111.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.60

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1230 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 24...32 Setting point w/out bumper spring

npm : 600 Rack travel in mm: 4.5

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 600 rom

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.60...10.70

2nd speed rpm : 950

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 950 npm

Del.quantity cm3/: 120.0...124.0 1000 s: (118.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

HIGH IDLE

1st version

rpm

Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm: 600 Rack travel in mm: 4.90...5.10

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE28881

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

Note remarks

: CUM 8,3 a62 Test sheet : 13.05.91 Edition : 18.2.91 Replaces

Test oil : ISO-4113

: 9 400 230 111 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 030 EP type number

Governor

Governor design. : RSV450...1100A0c2190

-40R

: 0 420 233 246 Governer no.

Customer-spec. information : C.D.C. Customer

Engine : 6CT830

1st version kW : 134.2 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 101 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed mon : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 450.0 2nd speed Rack travel in mm: 5.7...5.9

Del.quantity cm3/ : 1.6...2.0

100 s: (1.4...2.2)

cm3 : 0.6Spread 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 103.5...105.5 Del.quantity 1000 : (101.5...107.5)

Spread cm3 : 4.00

: (6.50) 1000

RATED SPEED

1st version

Control Lever position degrees: 49...57

BEGINNING OF DELIVERY

Testing:

1st rack travel in: 10.20 Speed rpm : 1140...1150 2nd rack ravel in: 4.00

rpm : 1210...1240 Speed

3rd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 31...39

Setting point W/out bumper spring

rpn: : 450 Rack travel in mm: 5.3

Testing:

: 100 Speed rpm

Minimum rack trave: 19.00 rpm : 450 Speed

Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.20...11.30 2nd speed rpm : 750 Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed man

Del.quantity cm3/: 111.5...115.5

1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

LOW IDLE

: 450 rpm

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 16.5...20.5 1000 s: (14.5...22.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C # 3915684

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : KHD 15,8 c2 : 03.06.91 Edition : 9.1.89 Replaces Test oil : ISO-4113

Combination no. : 0 400 649 188

Injection pump

Pump designation : PE10A95D610/4LS2452

EP type number : 0 410 699 998

Governor

Governor design. : RQV300...1150AB988DL

Governer no. : 0 420 214 229

Customer-spec. information Customer

Engine : F10L413F

: 216.0 1st version kW Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina |

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 Y Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-

5- 8- 7- 2

: 0-27-72-99-144-171-216-243-288-315 : 0.50 (0.75) Phasing

Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 10.00...10.10

Del.guantity cm3/: 9.1...9.2

100 s: (8.9...9.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.0...7.2 Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

: 91.5...92.5 : (89.5...94.5) Del.quantity

1000

: 3.00 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 9.00

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

4th rack travel in: 1350

rpm : 0.00...1.00Speed

L01

LOW IDLE 1 Control lever

position degrees: 80...88

Testing:

Speed : 200 rom Minimum rack trave: 9.00

Speed rpm : 300 Rack travel in mm : 5.90...6.10

: 750 Speed rpm Maximum rack trave: 1.00

CONSTANT REGULATION

rpm : 320...390 Speed

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.00...10.10

2nd speed rpm : 975

Rack travel in m: 10.20...10.40 3rd speed rpm : 700

Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: 90.0...93.0 1000 s: (87.5...95.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300

L02

Rack travel in mm : 7.00...7.20 Del.quantity cm3/: 17.0...23.0 1000 s: (14.5...25.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Note remarks

: DAF 8,3 n 7 : 27.05.91 Test sheet Edition : 21.5.90 Replaces Test oil : ISO-4113

Combination no. : 0 400 676 178

Injection pump

Pump designation : PE6A95D410RS2575 EP type number : 0 410 696 984

Governor

Governor design. : RSV250...750A7C2201L

Governer no. : 0 420 232 444

Customer-spec. information Customer

Engine : DHTD 825

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm : (1.95...2.15)

Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 11.0...11.1

100 s: (10.8...11.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0 Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.3

100 s: (0.5...1.4)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm

Del.quantity : 110.5....113.5)

: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 89...97

Testing:

1st rack travel in: 12.20 Speed rpm : 750...755 2nd rack travel in: 4.00

rpm : 782...797 Speed

4th rack travel in: 950 rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 65...73 Setting point w/out bumper spring

rpm : 250 Speed Rack travel in mm: 6.1

Testina:

rpm : 100 Speed Minimum rack trave: 19.50 rpm : 250 Speed Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00 Speed rpm : 265...325

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20 Speed rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 250 Speed

Rack travel in mm: 6.00...6.20 Del.quantity cm3/: 7.0...13.0 1000 s: (5.5...14.5) Spread cm3: 3.50 1000 s: (5.50)

Remarks:

APPLICATION

Generator

Note remarks

: DAF 8,3 n 8 : 27.05.91 Test sheet Edition : 27.2.91 Replaces Test oil : ISO-4113

: 0 400 676 192 Combination no.

Injection pump

Pump designation : PE6A95D410RS2575 EP type number : 0 410 696 984

Governor

: RSV250...750A7C2201-Governor design.

: 0 420 232 563 Governer no.

Customer-spec. information Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.00...2.10 : (1.95...2.15) Prestroke mm

Rack travel in mm : 7.50...10.50 Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00

Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 11.0...11.1

100 s: (10.8...11.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 250.0 2nd speed Rack travel in mm : 6.0...6.2 Del.quantity cm3/: 0.7...1.3

100 s: (0.5...1.4) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 110.5...111.5 Del.quantity : (108.5...113.5) : 3.50 1000

Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 89...97

Testing:

1st rack travel in: 12.20 rpm : 750...755 Speed

2nd rack travel in: 4.00

Speed rpm : 782...797 4th rack travel in: 950 Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 65...73

Setting point w/out bumper spring Speed rpm : 250 Rack travel in mm : 6.1

Testing:

Speed rpm: 100
Minimum rack trave: 19.50
Speed rpm: 250
Rack travel in mm: 6.00...6.20
Rack travel in mm: 2.00

rpm : 265...325 Speed

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.20 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.00...6.20
Del.quantity cm3/: 7.0...13.0 1000 s: (5.5...14.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

APPLICATION

Generator

Note remarks

: MB 6,0 j 1 : 27.05.91 Test sheet Edition : 1.2.91 Replaces Test oil : ISO-4113

: 0 400 846 592 Combination no.

Injection pump

Pump designation : PES6A95D410RS2797 EP type number : 0 410 896 900

Governor

: RQV300...1200AB1065-Governor design.

24L

Governer no. : 0 420 212 228

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 366 Engine

: 92.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 5.8...6.0

100 s: (5.6...6.2)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 8.6...9.0 Del.quantity cm3/: 0.8...1.2

100 s: (0.5...1.4)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed 300 rpm :

travel mm : 0.80...1.30

2nd speed 500 rpm

travel mm 2.30...2.80

: 750 3rd speed rpm

: 4.10...4.30 travel mm

1500 4th speed rpm

8.50...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1450 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1200 Speed rpm

Del.quantity : 58.5...60.5 1000 : (56.5...62.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 104...112

Testing:

1st rack travel in: 8.90

Speed rpm : 1240...1250

2nd rack travel in: 4.00

rpm : 1360...1390 Speed

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 73...81

Testing:

Speed rpm Minimum rack trave: 9.60

Speed rpm : 300

Rack travel in mm : 8.60...9.00

CONSTANT REGULATION

rpm : 525...625 Speed

TORQUE CONTROL

Dimension a mm : 0.80

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.90...10.00

2nd speed rpm : 500

Rack travel in m: 10.70...10.90

4th speed rpm : 840

Rack travel in m: 10.20...10.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed rpm

Del.quantity cm3/: 44.0...47.0 1000 s: (41.5...49.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.90

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

L08

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 14.60...15.00

Remarks:

Set shutoff stop to contact at 3.0...3.5 mm control-rod travel.

Note remarks

: KHD 4,1 k 1 : 03.06.91 : 22.3.91 Test sheet Edition Replaces : ISO-4113 Test oil

Combination no. : 0 400 864 088

Injection pump

Pump designation : PES4A85D410/3RS2799

EP type number : 0 410 884 944

Governor

Governor design. : RSV325...1250A2C2253

-2L

: 0 420 232 556 Governer no.

Customer-spec. information : KHD Customer

Engine : BF4L913

1st version kW : 78.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.45...2.55 : (2.40...2.60)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 11.70...11.80

Del.quantity cm3/: 8.4...8.5

100 s: (8.2...8.7)

Spread cm3 : 0.3

100 s: (0.5)

rpm : 325.0 2nd speed Rack travel in mm: 7.0...7.2 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1000

: 84.0...85.0 Del.quantity 1000 : (82.0...87.0)

: 3.00 Spread cm3 1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 89...97

Testing:

1st rack travel in: 10.70

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

Speed rpm : 1320...1350

L09

Prestroke mm

4th rack travel in: 1480

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 58...66

Setting point w/out bumper spring

rom : 325 Rack travel in mm: 6.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.50

Speed rpm: 325
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 320...380

TORQUE CONTROL

Torque control curve - 1st version

1st speed

t speed rpm : 1250 Rack travel in m: 11.70...11.80

2nd speed rpm : 500 Rack travel in m: 12.10...12.20

rpm : 960 4th speed

Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version

Settina

rpm : 500 hPa : 1000 Speed rpm Pressure

Rack travel mm : 12.10...12.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.00...11.10

2nd pressure hPa : 300 Rack travel in m: 11.80...11.90

3rd pressure hPa : 230

Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 520

Speed rpm : 800 Del.quantity cm3/: 80.0...82.0

1000 s: (77.5...84.5)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/ : 58.0...60.0

1000 s: (56.0...62.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Remarks:

APPLICATION

Compressor

Note remarks

Test sheet : KHD 4,1 k 2 : 27.05.91 Edition Replaces : 24.4.91

Test oil : ISO-4113

Combination no. : 0 400 864 089

Injection pump

Pump designation : PES4A85D410/3RS2799

EP type number : 0 410 884 944

Governor

Governor design. : RSV325...1075A8c2253

-3L

: 0 420 232 547 Governer no.

Customer-spec. information : KHD Customer

Engine : BF4L913

1st version kW : 70.0 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test mozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

: 1-3-4-2 Firing order

Phasina : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1075 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 7.9...8.0

100 s: (7.7...8.2)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 325.0

2nd speed Rack travel in mm: 8.2...8.4 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

Spread cm3 : 0.2100 s: (0.4)

GUIDEASLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1075 Speed Aneroid pressure h: 1000

Del.quantity : 79.5...80*.*5 1000 : (77.5...82.5)

: 3.00 cm3 Spread

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 10.90 Speed rpm : 1115...1125

2nd rack travel in: 4.00

rpm : 1150...1180 Speed

4th rack travel in: 1315 rom : 0.30...1.70Speed

LOW IDLE 1 Control Lever

position degrees: 64...72 Setting point w/out bumper spring

Speed rpm : 325 Rack travel in mm : 8.3

Testina:

rpm : 100 Speed Minimum rack trave: 19.50
Speed rpm : 325
Rack travel in mm : 8.20...8.40
Rack travel in mm : 2.00
Speed rpm : 350...410

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1075
Rack travel in m: 11.90...12.00
2nd speed rpm : 500
Rack travel in m: 12.40...12.50
4th speed rpm : 860
Pack travel in m: 12.20...12.60

Rack travel in m: 12.20...12.40

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed rpm Pressure hPa : 1000

: 12.40...12.50 Rack travel mm

Measurement

1/min : 500 Speed

1st pressure hPa : -

Rack travel in m: 11.40...11.50 2nd pressure hPa : 330 Rack travel in m: 12.00...12.10

3rd pressure hPa : 250

Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 750
Del.quantity cm3/: 79.5...81.5
1000 s: (77.0...84.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 57.0...59.0 1000 s: (55.0...61.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 1115...1125

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm : 18.00...18.40

Remarks:

Note remarks

Test sheet : MM 4,1 b 6 Edition : 03.06.91

Replaces Test oil

: ISO-4113

Combination no.

: 0 400 864 092

Injection pump

Pump designation : PES4A90D320/3RS2659

EP type number

: 0 410 894 028

Governor

Governor design.

: RSV325...1250A5C2182

-9R

Governer no.

: 0 420 233 287

Customer spec. information Customer

Engine : TD226B-4

1st version kW : 87.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.95...3.05 Prestroke mm : (2.90...3.10)

Rack travel in mm : 9.00...12.00 : 1-3-4-2 Firing order

Phasing : 0-90-180-270

Tolerance $+ - \circ : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...0.00 & maximum rack tra: 21.00 Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.1...9.2

100 s: (8.9...9.4)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 325.0 Rack travel in mm: 7.0...7.2

Del.quantity cm3/: 0.8...1.4 100 s: (0.6...1.6)

cm3 : 0.2Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting \bar{x} : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 700

Del.quantity : 91.5...92.5 1000 : (89.5...94.5) Spread cm3 : 3.00 1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 103...111

Testing:

1st rack travel in: 10.50

rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rom : 1345...1375 Speed 3rd rack travel in: 4.00 Speed rpm : 1355...1385 4th rack travel in: 1520 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.50 rpm : 325 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 : 445...505 Speed rom TORQUE CONTROL Torque control curve - 1st version rpm : 1250 1st speed Rack travel in m: 11.50...11.60 rpm : 500 2nd speed Rack travel in m: 12.60...12.70 3rd speed rpm : 920 Rack travel in m: 11.90...12.10 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 700 rpm Pressure : 12.60...12.70 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.40...10.50 2nd pressure hPa : 185 Rack travel in m: 11.60...11.70 3rd pressure hPa : 90 Rack travel in m: 11.00...11.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 700 Speed

Del.quantity cm3/: 98.5...100.5

1000 s: (96.0...103.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

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Note remarks

Test sheet : KHD 6,1 w : 27.05.91 Edition : 24.4.91 Replaces Test oil : ISO-4113

: 0 400 866 169 Combination no.

Injection pump

Pump designation : PES6A85D410/3RS2611

EP type number : 0 410 886 902

Governor

: RSV325...1250A2C540-Governor design.

Governer no. : 0 420 232 565

Customer-spec. information Customer : KHD

Engine : F6L913

: 89.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 6.2...6.3

100 s: (6.0...6.5)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 325.0Rack travel in mm: 8.7...8.9 Del.quantity cm3/: 1.2...1.8

100 s: (1.0...2.0)

cm3 : 0.2 Spread 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

: 62.5...63.5 Del.quantity 1000 : (60.5...65.5)

: 3.00 cm3

Spread

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 9.50

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

: 1350...1380 Speed rpm

4th rack travel in: 1525

Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm : 7.0 Testing: Speed rpm : 100 Minimum rack trave: 19.50 : 325 грт Rack travel in mm : 6.90...7.10 Rack travel in mm : 2.00 : 410...470 Speed rpm SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250
Rack travel in m: 10.50...10.60
2nd speed rpm : 500
Rack travel in m: 11.10...11.20
4th speed rpm : 1000
Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 54.0...56.0 1000 s: (51.5...58.5) cm3 : 2.50 1000 s: (4.) Spread **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Remarks:

:

Wheel Loader

L16

APPLICATION

Note remarks

Test sheet : VAL 6,6 a 3 Edition : 24.04.91

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 876 3210K

Injection pump

Pump designation : PES6A95D32ORS2684 EP type number : 0 410 896 917

Governor

Governor design. : RSV325...1050A0c2178

-2R

Governer no. : 0 420 233 178

Customer—spec. information Customer : VALMET

Engine : MF 3690

1st version kW : 140.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.00

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60

: (2.45...2.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \cdot : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack tray. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 10.9...11.1

100 s: (10.7...11.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 3.8...4.0 Del.quantity cm3/: 1.1...1.4

100 s: (0.8...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 81...14 Testing: 1st rack travel in: 10.90 rpm : 1135...1145 Speed 2nd rack travel in: 4.00 Speed rpm : 1850...1215 3rd rack travel in: 4.00 Speed rpm : 1190...1220 4th rack travel in: 1360 rpm : 0.30...1.40Speed LOW IDLE 1 Control Lever position degrees: 64...72 Setting point w/out bumper spring rpm : 500 Speed Rack travel in mm: 3.4 rpm : 500 Speed Rack travel in mm : 3.80...4.00
Rack travel in mm : 2.00
Speed rpm : 510...570 TORQUE CONTROL Dimension a mm : 0.70 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.90...12.00

2nd speed rpm : 500

Rack travel in m: 11.90...-12.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 Speed rpm : 1135...1145 STARTING FUEL DELIVERY rpm : 100 Rack travel in mm : 19.50...21.00 Remarks: **APPLICATION** Tractor (tractor engines)

Note remarks

: DAF 6,2 q 2 : 27.05.91 : 28.3.91 Test sheet Edition Replaces

Test oil : ISO-4113

: 0 400 876 377 Combination no.

Injection pump

Pump designation : PES6A95D32ORS2693Z

EP type number : 0 410 896 913

Governor

Governor design. : RSV300...1300A0c2248

-1R

: 0 420 233 273 Governer no.

Customer-spec, information Customer : DAF

: NS156 Engine

1st version kW : 156.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 7.50...10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50 & maximum rack tra: 21.00

Difference ° CS : 2.50...3.50

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 8.7...8.8

100 s: (8.5...9.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm : 6.3...6.5 Del.quantity cm3/: 0.6...1.0

100 s: (0.3...1.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 700

Del.quantity : 87.5...88.5 1000 : (85.5...90.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 97...103 Testina: 1st rack travel in: 11.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1390...1420 Speed 3rd rack travel in: 4.00 rpm : 1410...1440 Speed 4th rack travel in: 1575 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 66...74 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.9 Testing: Speed : 100 rpm Minimum rack trave: 19.50 Speed rpm : 300 Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00 Speed : 580...640 rom TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 12.30...12.40 2nd speed rpm : 500 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 700 : 12.00...12.10 Rack travel mm Measurement 1/min : 600Speed 1st pressure hPa : -Rack travel in m: 10.30...10.50 2nd pressure hPa : 290
Rack travel in m: 11.50...11.60
3rd pressure hPa : 250 Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: -

Speed rpm : 600
Del.quantity cm3/ : 53.5...54.5
1000 s: (51.5...56.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.00
Speed rpm : 1340...1350

LOW IDLE

Remarks:

L20

Note remarks

: MB 6,0 c 9 : 27.05.91 Test sheet Edition : 14.12.90 Replaces : ISO-4113 Test oil

Combination no. : 0 400 876 380

Injection pump

Pump designation : PES6A90D410RS2710 EP type number : 0 410 896 082

Governor

: RSV350...1200A1C1163 Governor design.

: 0 420 232 546 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 74.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35

: (2.20...2.40)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 5.1...5.2

100 s: (4.9...5.4)

cm3 : 0.3Spread

100 s: (0.4)

rpm : 370.0 2nd speed Rack travel in mm: 7.9...8.5 Del.quantity cm3/: 1.0...1.2

100 s: (0.8...1.4)

Spread cm3 : 0.2100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 51.0...52.0 Del.quantity 1000 : (49.0...54.0)

cm3 : 3.00 Spread

1000 : (4.50)

RATED SPEED

1st version

Control Lever

position degrees: 109...117

Testing:

1st rack travel in: 8.30

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1267...1280

3rd rack travel in: 4.00

rpm : 1300...1330 Speed 4th rack travel in: 1400 Speed rpm: 0.30...1.40 5th rack travel in: 1255...1265 Speed rpm: 8.30

LOW IDLE 1 Control lever

position degrees: -3

Setting point w/out bumper spring

rpm Rack travel in mm: 8.2

Testing:

Speed rom : 100 Minimum rack trave: 19.50 : 370 rpm

Rack travel in mm : 8.10...8.30

Rack travel in mm : 2.00 Speed rpm : 460...520

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.30...9.40

2nd speed rpm : 600

Rack travel in m: 10.00...10.20 3rd speed rpm : 900

Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

: 600 Speed rom

Del.quantity cm3/: 41.0...43.0

1000 s: (38.5...45.5)

: 900 Speed rpm

Del.quantity cm3/: 46.0...49.0 1000 s: (43.5...51.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.30

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 85.0...95.0

1000 s: (82.0...98.0)

Rack travel in mm : 16.80...17.20

LOW IDLE

Speed rpm : 370
Rack travel in mm : 7.90...8.50
Del.quantity cm3/ : 10.0...12.0
1000 s: (8.0...14.0)
Spread cm3 : 2.50

1000 s: (4.50)

Remarks:

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

APPLICATION

Unimog

Note remarks

: MB 6.0 c 11 : 27.05.91 Test sheet Edition Replaces : 14.12.90 : ISO-4113 Test oil

: 0 400 876 385 Combination no.

Injection pump

Pump designation : PES6A90D410RS2710 EP type number : 0 410 896 082

Governor

: RSV350...1400A0C1163 Governor design.

: 0 420 232 552 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 366 Engine

1st version kW : 96.0 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.25...2.35 Prestroke mm

: (2.20...2.40)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1400 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 6.0...6.1

100 s: (5.8...6.3)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 350.0 2nd speed Rack travel in mm : 8.8...9.4

Del.quantity cm3/: 1.0...1.4 100 s: (0.8...1.6)

Spread cm3 : 0.2100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1400 Speed rpm

: 60.5...61.5 : (58.5...63.5) Del.quantity 1000

: 3.00 cm3 Spread

1000 : (5.00)

RATED SPEED

1st version

Control lever

position degrees: 109...117

Testing:

1st rack travel in: 9.80

rpm : 1435...1440 Speed

2nd rack travel in: 4.00

: 1475...1488 Speed rpm

3rd rack travel in: 4.00

Speed rpm : 1515...1545 4th rack travel in: 1575

Speed rpm: 0.30...1.40
5th rack travel in: 1440...1450
Speed rpm: 9.80

LOW IDLE 1 Control lever

position degrees: -3

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 9.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.50 Speed rpm : 350

Rack travel in mm : 9.00...9.20 Rack travel in mm : 2.00

Speed man : 470...530

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1400

Rack travel in m: 10.80...10.90

2nd speed rpm : 500

Rack travel in m: 12.10...12.20

3rd speed rpm : 750

Rack travel in m: 11.80...12.00

4th speed rpm : 950

Rack travel in m: 11.40...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 52.0...54.0 1000 s: (49.5...56.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1435...1440

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 16.90...17.30

LOW IDLE

Speed rpm : 350

L24

Rack travel in mm : 8.80...9.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (8.0...16.0)
Spread cm3 : 2.50

1000 s: (4.50)

Remarks:

Set pneumatic shutoff device to control-rod stop = 0.5...1.5 mm control-rod travel at 4.5 bar atmospheric pressure.

APPLICATION

Unimog

Note remarks

: SSC 14.0 a1 : 27.05.91 Test sheet Edition Replaces : 22.5.87 Test oil : ISO-4113

Combination no. : 0 401 830 711

Injection pump

Pump designation : PE12P100A520/6RS3103

: 0 411 800 703 EP type number

Governor

Governor design. : RQV375...1000PA639-2

: 0 421 813 514 Governer no.

Customer-spec. information Customer : SSCM

Engine : V 12.520 AN

1st version kw : 220.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00 Firing order : 1-8-5-10-3-7-

6- 11- 2- 9- 4- 12

: 0-15-60-75-120-135-Phasing

180-195-240-255-300-

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.60...11.70

Del.guantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0 Rack travel in mm : 7.6...7.8 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm :

350 1.10...1.60 travel mm

: 450 2nd speed man

: 3.30...3.70 : 700 travel mm

3rd speed rom

travel mm : 5.20...5.60

: 1000 4th speed rpm

travel mm : 7.60...7.80

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1075

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 93.5...95.5 : (91.5...97.5) Del.quantity

1000

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 10.60

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

Speed rpm : 1125...1155 4th rack travel in: 1250 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 71...79

Testing:

Speed rpm : 100 Minimum rack trave: 9.20

Speed rpm : 375 Rack travel in mm : 7.60...7.80

CONSTANT REGULATION

rpm : 375...475 Speed

START CUT-OUT

Speed 1/min : 320 (340)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 230.0...250.0

1000 s: (226.0...254.0)

LOW IDLE

Speed rpm : 375
Rack travel in mm : 7.60...7.80 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

L26

Note remarks

: RVI 9,8 h : 23.11.90 Test sheet Edition Replaces : 5.3.90 Test oil : ISO-4113

Combination no. : 0 401 846 561

Injection pump

Pump designation: PE6P120A320RS519 : 0 411 826 145 EP type number

Governor

Governor design. : RQ275/1050PA899 Governer no. : 0 421 801 460

Customer-spec. information Customer : RVI

: MIHS 06.20.45 Engine

: 185.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 16.4...16.6

100 s: (16.1...16.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 5.5...5.9 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2) cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 700

: 164.0...166.0 Del.quantity 1000 : (161.0...169.0)

cm3 : 5.00 1000 : (9.00) Spread

RATED SPEED

1st version

Setting point:

Speed Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.10

rpm : 1105...1120 Speed 2nd rack travel in: 4.00 Speed rpm : 1205...1235 4th rack travel in: 1350 Speed rom : 0.00...1.00 LOW ICLE : Setting point w/out bumper spring rom Rack thavel in mm : 5.4 Testing: Speed : 200 rpm Minimum rack trave: 6.50 : 275 rpm Rack travel in mm : 5.60...5.80 Rack travel in mm : 2.10 Speed rpm : 430...470 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 700 Pressure Rack travel mm : 11.10...11.20 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.70...9.90 2nd pressure hPa : 260 Rack travel in m: 10.60...10.70 3rd pressure hPa : 220 Rack travel in m: 10.00...10.20 START CUT-OUT 1/min: 195 (215) Speed FUEL DELIVERY CHARACTERISTICS 1st version eroid pressure h: 700 Del.quantity cm3/: 155.0...161.0 1000 s: (152.0...164.0) Aneroid pressure h: -ന**ാന** : 581 Speed Del.quantity cm3/: 17 .0...105.0 1000 s: (100.0...108.0)

1mm rack travel less than full load rack tr: 10.10 Speed rpm : 1105...1120 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...165.0 1000 s: (131.0...169.0) LOW IDLE Speed : 275 rpm Rack travel in mm : 5.50...5.90 Del.quantity cm3/ : 13.0...19.0 1000 s: (10.0...22.0) Spread cm3 : 8.001000 s: (12.00) Remarks:

APPLICATION

Omnibus

L28

BREAKAWAY

1st version

Note remarks

Test sheet : DAF 11,7 o1 : 27.05.91 Edition : 24.4.91 Replaces Test oil : ISO-4113

Combination no. : 0 401 846 568

Injection pump

Pump designation : PE6P110A320RS529 EP type number : 0 411 816 179

Governor

Governor design. : RQ275/1000PA1012 : 0 421 801 595 Governer no.

Customer-spec. information Customer : DAF

: LT 195 G Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening .

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 14.50...15.50 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.20...5.40 & maximum rack tra: 14.7...15.7 Difference ° CS : 2.00...4.00

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 15.70...15.80

Del.quantity cm3/: 19.3...19.5

100 s: (19.0...19.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 7.7...7.9 Del.quantity cm3/ : 2.2...2.7

100 s: (1.9...2.9) Spread cm3 : 0.4100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000 Del.quantity

: 193.0...195.0 1000 : (190.5...197.5)

Spread : 4.00 cm3

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rom Rack travel in mm: 20.0

Testing:

1st rack travel in: 14.20

rpm : 1025...1040

2nd rack travel in: 4.00

Speed rpm : 1105...1135 4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.8

Testing:

rpm : 100 Speed Minimum rack trave: 11.20 : 300 Speed rpm

Rack travel in mm : 7.70...7.90

Rack travel in mm : 2.00

: 350...390 Speed וחסרו

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

: 980 1st speed rpm

Rack travel in m: 15.20...15.40

: 600 2nd speed rpm

Rack travel in m: 16.00...16.30

: 750 3rd speed rpm

Rack travel in m: 15.55...15.75

rpm : 825 4th speed

Rack travel in m: 15.30...15.50

Aneroid/Altitude Compensator Test

1st version Settina

Speed : 600 rpm

hPa : 1000 Pressure

: 15.70...15.80 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 13.10...13.30

2nd pressure hPa : 440

Rack travel in m: 15.10...15.20

3rd pressure hPa : 340

Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 980 Speed rpm

Del.quantity cm3/: 178.0...182.0 1000 s: (175.0...185.0)

Aneroid pressure h: -

: 600 Speed rom

Del.quantity cm3/: 132.0...134.0 1000 s: (129.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.20

rpm : 1025...1040 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 290.0...330.0 1000 s: (287.0...333.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm

Rack travel in mm : 7.70...7.90 Del.quantity cm3/ : 22.0...27.0

1000 s: (19.5...29.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : ENA 11,9 c : 27.05.91 Test sheet Edition Replaces : 1.12.89 Test oil : ISO-4113 Combination no. : 0 401 846 860 Injection pump Pump designation : PE6P120A320RS3200 EP type number : 0 411 826 766 Governor : RQV250...1000PA808-1 Governor design. : 0 421 813 660 Governer no. Customer-spec. information Customer : ENASA : 96 R1 BX Engine 1st version kW : 265.0 Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 019 **Opening** pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter x Wall thickness : 6.00X1.50X1000 x Length ::

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 600 Rack travel in mm : 11.90...12.00 Del.quantity cm3/: 24.9...25.1 100 s: (24.6...25.4) Spread cm3 : 0.5 100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm : 3.3...3.7 Del.quantity cm3/ : 1.7...2.3 100 s: (1.4...2.6) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 : 1.00...1.40 travel mm 2nd speed : 350 rpm travel mm : 2.10...2.60 3rd speed : 700 rpm travel mm : 4.70...5.30 4th speed rpm : 1055 : 7.90...8.10 travel mm 5th speed rpm : 1145 travel mm : 9.00...9.40 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1070 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rom : 600

Aneroid pressure h: 1200

Prestroke mm

: 3.80...3.90 : (3.75...3.95) Del.quantity : 249.0...251.0 1000 : (246.0...254.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 115...123

Testing:

1st rack travel in: 10.90 Speed rpm : 1050...1060 2nd rack travel in: 4.00

Speed rpm : 1130...1160 4th rack travel in: 1250 Speed rpm

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 73...81

Testing:

Speed rpm : 100 Minimum rack trave: 5.00 rpm

Rack travel in mm : 3.30...3.70

CONSTANT REGULATION

rpm : 250...330 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 1200

: 11.90...12.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.50...8.90

2nd pressure hPa : 680

Rack travel in m: 11.30...11.40 3rd pressure hPa : 420

Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 900 Del.quantity cm3/: 244.0...250.0

1000 s: (241.0...253.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 149.0...152.0 1000 s: (146.5...154.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90 Speed rpm : 1050...1060 Speed

STARTING FUEL DELIVERY

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Note remarks

Test sheet : MB 14,7 L 5 Edition : 27.05.91

Replaces

: ISO-4113 Test oil

Combination no. : 0 401 848 816

Injection pump

Pump designation : PE8P110A320LS3846-1

EP type number : 0 411 818 719

Governor

Governor design. : RQ300/1050PA1007

Governer no. : 0 421 801 588

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M442

1st version kW : 195.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow.

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55)

Rack travel in mm : 9.00...12.00 Firing order : 8-7-2-6-3-5-

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 11.4...11.6

100 s: (11.4...11.6)

cm3 : 0.8Spread

rpm : 300.0 2nd speed Rack travel in mm: 7.0...7.6 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.4)

cm3 : 0.6Spread 100 s: (1.1)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 650 Speed

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 114.0...116.0 1000 : (114.0...116.0)

Spread cm3 : 8.50

RATED SPEED

1st version

Setting point:

rpm Rack travel in mm: 13.5

Testing:

1st rack travel in: 10.10

Speed rpm : 1090...1100 2nd rack travel in: 4.00

Speed rpm : 1170...1200 4th rack travel in: 1300

Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 200 Minimum rack trave: 9.20 Speed rpm : 300 Rack travel in mm : 7.00...7.60

Rack travel in mm : 2.00 rpm : 400...440 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 110.0...116.0 1000 s: (107.0...119.0)

Spread cm3 : 11.00 1000 s: (14.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Note remarks

: KHD 16,0 e : 27.05.91 Test sheet Edition : 24.4.91 Replaces Test oil : ISO-4113

Combination no. : 0 401 849 752

Injection pump

Pump designation : PE10P110A920/5LS3276

: 0 411 819 712 EP type number

Governor

Governor design: : RQV300...1150PA997

: 0 421 813 927 Governer no.

Customer-spec. information Customer : KHD

: F 10L513 Engine

: 223.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20 : (3.05...3.25) Rack travel in mm : 9.00...12.00

: 1- 10- 9- 4- 3- 6-5- 8- 7- 2 Firing order

: 0-27-72-99-144-171-216-243-288-315 : 0.50 (0.75) Phasing

Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 9.90...10.00

Del.quantity cm3/: 10.8...11.0

100 s: (10.5...11.3)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 350.0 2nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.2...1.7 100 s: (1.0...2.0)

Spread cm3 : 0.4100 s: (0.7)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm :

2.30...2.70 travel mm 510 2nd speed rpm 3.60...4.10 travel mm : 870 3rd speed rpm travel mm : 7.40...7.90

4th speed rpm 1200 9.90...10.40 travel mm 5th speed : 1300 rpm

: 10.90...11.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 Speed rpm : 1250 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Del.quantity : 108.0...110.0 1000 : (105.0...113.0)

M07

cm3 : 4.00 1000 : (7.50) Spread RATED SPEED 1st version Control lever position degrees: 44...52 Testing: 1st rack travel in: 8.90 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm: 1270...1300 4th rack travel in: 1400 npm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 15...23 Testing: : 100 Speed rom Minimum rack trave: 7.10 rpm : 350 Rack travel in mm : 4.40...4.60 CONSTANT REGULATION rpm : 300...420 Speed START CUT-OUT 1/min: 220 (0) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 700 Del.quantity cm3/ : 100.0...104.0 1000 s: (97.0...107.0) Spread cm3 : 6.001000 s: (9.) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.90 rpm : 1190...1200 STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...165.0 1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.40...4.60

Remarks:

80M

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DAF 11,6017 : 29.05.91 Edition : 24.4.91 Replaces Test oil : ISO-4113 Combination no. : 0 401 876 295R Injection pump Pump designation : PE6P120A320RS415-1R EP type number : 0 411 826 123 Governor Governor design. : RSV250...1000P5A508-: 0 421 833 194 Governer no. : 0763424 Cust. part no. Customer-spec. information Customer : DAF

TEST BENCH REQUIREMENTS

Test oil

Engine

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

: DKXD 1160 ATi M

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 17.6...17.8

100 s: (17.3...18.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0Rack travel in mm : 6.7...6.9 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed Aneroid pressure h: 700

Del.quantity : 1/0.0...181.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 10.00

rpm : 1035...1045 Speed

2nd rack travel in: 4.00

rpm : 1115...1145 Speed

3rd rack travel in: 4.00

rpm : 1190...1220 Speed

4th rack travel in: 1350

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring Speed rpm : 250

Rack travel in mm: 6.0

Testing:

rpm : 100 rpm : 250 Speed

Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm: 2.00

Speed : 630...690 COM

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 11.40...11.50

2nd speed rpm : 400

Rack travel in m: 11.40...11.60

3rd speed rpm : 300

Rack travel in m: 11.70...12.20

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rpm

Pressure hPa : 700

Rack travel mm : 11.10...11.20

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 210

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 600 Del.quantity cm3/ : 140.0...142.0

1000 s: (137.0...145.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

rpm : 1035...1045 Speed

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.40...6.60

Remarks:

M10

Note remarks

: DAF 11,6t33 : 29.05.91 : 24.4.91 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 401 876 297Y

Injection pump

Pump designation : PE6P110A320RS385-1Y

EP type number : 0 411 816 146

Governor

Governor design. : RSV250...750P7A507 Governer no. : 0 421 833 185

Cust. part no. : 0290321

Customer-spec. information Customer : DAF

: DKTD 1160(1500) Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.80...12.00

Del.quantity cm3/: 15.2...15.4

100 s: (14.9...15.6)

cm3 : 0.4Spread

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 6.8...7.0 Del.quantity cm3/: 2.5...3.3

100 s: (2.2...3.5)

cm3 : 0.4Spread

100 s: (0.7)

GUIDE SLEEVE FOSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

152.0...154.0 Del.quantity

1000 : (149.5...156.5)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.80 Speed rpm : 750...755 2nd rack travel in: 4.00

Speed rpm : 780...795 4th rack travel in: 950

rpm : 0.30...1.40 Speed

M11

LOW IDLE 1 Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm : 6.9 : 250 Speed rpm

Rack travel in mm : 6.80...7.00

Rack travel in mm : 2.00 Speed rpm : 265...325

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.80 Speed rpm : 750...755 Speed

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.80...7.00
Del.quantity cm3/ : 25.0...33.0
1000 s: (22.5...35.5)

Spread cm3 : 4.50 1000 s: (7.50)

Remarks:

APPLICATION

Generator

Note remarks

: DAF 11,6023 : 27.05.91 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 344

Injection pump

Pump designation : PE6P120A320RS415-1Z

EP type number : 0 411 826 136

Governor

Governor design. : RSV250...1100P5A508-

: 0 421 833 298 Governer no.

Customer-spec, information Customer : DAF

Engine : KT 200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 850

Rack travel in mm : 10.30...10.40

Del.quantity cm3/: 16.0...16.2

100 s: (15.7...16.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 250.0 2nd speed

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 100 s: (1.2) Spread

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 700

Del.quantity 1000 : 160.0...162.0

: (157.0...165.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 95...103

Testing:

1st rack travel in: 9.30

rpm : 1125...1135 Speed

2nd rack travel in: 4.00

rpm : 1165...1195 Speed

3rd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1375

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250 Rack travel in mm: 5.6

Testing:

Speed rpm : 100 : 250 Speed rpm

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

: 610...710 Speed COM

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 400

Rack travel in m: 10.50...10.70

2nd speed rpm : 300

Rack travel in m: 10.80...11.30

Aneroid/Altitude Compensator Test

1st version

Settina

rom : 600 hPa : 700 Speed rom Pressure

Rack travel mm : 10.30...10.40

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 180

Rack travel in m: 10.10...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm : 600 Speed

Del.quantity cm3/: 131.5...133.5

1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

M14

rpm : 1125...1135 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 310.0...350.0 1000 s: (306.0...354.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.00...6.20

Remarks:

Note remarks

: PEN 7,1 c 4 : 27.05.91 Test sheet Edition : 16.1.91 Replaces Test oil : ISO-4113

Combination no. : 0 401 876 781

Injection pump

Pump designation : PE6P110A320RS3147 EP type number : 0 411 816 743

Governor

Governor design. : RSV650...750P4A421-2

: 0 421 833 336 Governer no.

Customer-spec. information Customer : PENTA

Engine : TD71AG

1st version kW : 127.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina (

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm: 10.70...10.80

Del.quantity cm3/: 14.0...14.2

100 s: (13.7...14.5)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 650.02nd speed Rack travel in mm: 4.5...4.7 Del.quantity cm3/: 1.7...2.1 100 s: (1.4...2.3)

Spread cm3 : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 140.0...142.0 : (137.0...145.0)

1000

cm3 : 4.00 Spread 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 86...94

Testing:

1st rack travel in: 9.70

Speed rpm : 742...747

2nd rack travel in: 4.00

: 771...784 Speed rpm

M15

4th rack travel in: 940

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 81...89 Setting point w/out bumper spring

Speed rpm: 650 Rack travel in mm: 4.6 Speed rpm : 650
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00

Speed rpm : 635...695

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 650 Rack travel in mm : 4.50...4.70 Del.quantity cm3/ : 17.0...21.0

1000 s: (14.5...23.5)

cm3 : 6.00 1000 s: (9.00) Spread

Remarks:

APPLICATION

Generator set

Note remarks

Test sheet : PEN 12,1 b1 : 27.05.91 Edition Replaces : 16.1.91

Test oil : ISO-4113

Combination no. : 0 401 876 782

Injection pump

Pump designation : PE6P12OA32ORS3189 EP type number : 0 411 826 759

Governor

Governor design, : RSV650...750P4A421-3

: 0 421 833 337 Governer no.

Customer-spec. information Customer : PENTA

Engine : TD121GG

1st version kW : 199.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70 : (2.55...2.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 24.1...24.3

100 s: (23.8...24.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 650.0 2nd speed Rack travel in mm : 3.3...3.5 Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.7)

cm3 : 0.5Spread

100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 700

: 241.0...243.0 Del.quantity

1000 : (238.0...246.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testina:

1st rack travel in: 10.40

Speed rpm : 750...755 2nd rack travel in: 4.00 Speed rpm : 791...804 4th rack travel in: 950 Speed rpm : 0.30...1.70

LOW IDLE 1 Control Lever

position degrees: 85...93

Setting point w/out bumper spring

Speed rpm: 650
Rack travel in mm: 3.4
Speed rpm: 650
Rack travel in mm: 3.30...3.50
Rack travel in mm: 2.00

Speed rpm : 630...690

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.40 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 480.0...520.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : PEN 12,1 b2 Edition : 27.05.91

Replaces

Test oil : ISO-4113

Combination no. : 0 401 876 784

Injection pump

Pump designation : PE6P120A320RS3189 : 0 411 826 759

EP type number Governor

Governor design. : RSV650...750P4A421-7 Governer no. : 0 421 833 359

Customer-spec. information Customer : PENTA

TEST BENCH REQUIREMENTS

Test oil

Engine

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

: TID 71 AG

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 019

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.60...2.70 Prestroke mm

: (2.55...2.75)

Rack travel in mm : 9.00...12.00

Firina order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 8.90...9.00

Del.guantity cm3/: 17.3...17.5

100 s: (17.0...17.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 650.0 2nd speed Rack travel in mm : 3.3...3.5 Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.7)

cm3 : 0.5Spread 100 s: (0.7)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 173.0...175.0 Del.quantity 1000 : (170.0...178.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 90...98

Testing:

1st rack travel in: 7.90

Speed rpm : 750...755

2nd rack travel in: 4.00 rpm : 772...785 Speed

M19

4th rack travel in: 900 Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 84...92 Setting point w/out bumper spring

Speed rpm : 650 Rack travel in mm : 3.4

Speed rpm : 650
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00
Speed Speed rom : 630...690

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.90 rpm : 750...755 Spead

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 480.0...520.0 1000 s: (-)

Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version

Rack travel in mm : 3.80...4.20 Spread cm3 : 5.00

1000 s: (8.00)

:

Remarks:

APPLICATION

Generator set

Note remarks

: MB 14,6 p 5 Test sheet : 27.05.91 Edition : 18.2.91 Replaces Test oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump

Pump designation: PE8P120A320LS3816-10

EP type number : 0 411 828 715

Governor

Governor design. : RSV650...1150P0A823-

: 0 421 833 280 Governer no.

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : 0M422A

1st version kW : 206.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 067 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.00...4.10 Prestroke mm

: (3.95...4.15) Rack travel in mm : 9.00...12.00

: 8- 7- 2- 6- 3- 5-Firing order

Phasing : 0-45-90-135-180-225-

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

1st speed rpm: 1180

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 13.5...13.7

100 s: (13.2...14.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 650.02nd speed Rack travel in mm : 3.3...3.6 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

> Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 135.0...137.0

1000 : (132.0...140.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

M21

Control lever

position degrees: 46...54

Testina:

1st rack travel in: 8.40

rpm : 1210...1215 Speed

2nd rack travel in: 4.00

Speed rpm : 1232...1247 4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

Speed : 650 rpm Rack travel in mm: 3.4

Speed rpm: 650
Rack travel in mm: 3.30...3.60
Rack travel in mm: 2.00

Speed : 655...695 man

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180

Rack travel in m: 9.40...9.50

2nd speed rpm : 950

Rack travel in m: 10.80...11.10

3rd speed rpm : 1050

Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed **LDW**

Del.quantity cm3/: 158.0...161.0 1000 s: (155.0...164.0)

cm3 : 8.00 Spread

1000 s: (12.0) Speed rpm : 1075 Del.quantity cm3/: 148.0...152.0 1000 s: (145.0...155.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 1210...1215

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...160.0 1000 s: (136.0...164.0)

LOW IDLE

rpm : 650 Speed

Rack travel in mm : 3.30...3.60 Del.quantity cm3/: 16.0...22.0

1000 s: (13.0...25.0)

Spread

cm3 : 8.00 1000 s: (12.00)

Remarks:

Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Forage harvester

Note remarks

Test sheet : MB 11,7 j Edition : 27.05.91

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 046 825

Injection pump

Pump designation : PES6P110A820LS3282

EP type number : 0 412 016 736

Governor

Governor design. : RQ300/1100PA800-2

: 0 421 801 593 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 06447 h

1st version kW : 157.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm : (4.35...4.55)

Rack travel in mm : 19.00...21.00

: 6-2-4-1-5-3 firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 13.6...13.8

100 s: (13.3...14.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.4 Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 600 Rack travel in mm : 13.00...14.00

FULL LOAD DELIY. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 136.0...138.0 1000 : (133.5...140.5)

: 4.00 cm3

Spread

: (8.00) 1000

RATED SPEED

1st version

Setting point:

Speed rpm Rack travel in mm: 13.5

Testing:

1st rack travel in: 9.90

rpm : 1140...1150 Speed

M23

2nd rack travel in: 4.00 Speed rpm : 1180...1210

4th rack travel in: 1250

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 7.3

Testing:

Speed rpm : 200 Minimum rack trave: 8.80

Speed rpm : 300
Rack travel in mm : 7.20...7.40
Rack travel in mm : 2.00
Speed rpm : 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Note remarks

Test sheet : MB 11,7 j 1 Edition : 27.05.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 046 826

Injection pump

Pump designation : PES6P110A820LS3282

EP type number : 0 412 016 736

Governor

Governor design. : RQ300/1100PA786-2

: 0 421 801 576 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 h

: 157.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55) Rack travel in mm : 19.00...21.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 13.6...13.8

100 s: (13.3...14.0)

cm3 : 0.4Spread

100 s: (0.8)

2nd speed rpm : 300.0 Rack travel in mm : 7.2...7.4

Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.4

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 600 Speed

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

: 1100 Speed rpm

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm3 : 4.00

> 1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed

Rack travel in mm: 13.5

Testina:

1st rack travel in: 9.90 Speed rpm : 1140...1150

2nd rack travel in: 4.00 Speed rpm : 1180...1210 4th rack travel in: 1250 Speed rpm : 0.00...1.50 LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.3 Testing:

Speed rpm : 200 Minimum rack trave: 8.80 Speed rpm: 300
Rack travel in mm: 7.20...7.40
Rack travel in mm: 2.00
Speed rpm: 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/: 113.0...116.0 1000 s: (110.0...119.0)

cm3 : 5.00 Spread 1000 s: (9.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (126.0...154.0)

Remarks:

Note remarks

: AIF 23,2 a : 27.05.91 Test sheet Edition

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 630 806

Injection pump

Pump designation: PE12P130A920/6LS7842 : 0 412 630 802

EP type number

Governor

Governer no.

Governor design. : RQV400. ..1150PA1(104 : 0 421 813 823

Customer-spec. information Customer

: IVECO-AIFG

Engine

: 82915Ri

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-

11- 10- 3- 6- 7- 12

Phasing

: 0-15-60-75-120-135-

180-195-240-255-300-

315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1690

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 30.3...30.6

100 s: (29.9...30.9)

S.Jreadi

cm3 : 0.6

100 s: (1.0)

rpm : 400.02nd speed

Rack travel in mm : 4.0...4.4

Del.quantity cm3/: 3.5...4.1

100 s: (3.1...4.5) cm3 : 1.0

Spread

100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 400

2.60...3.00 travel mm : 500 2nd speed rpm

: 4.20...4.80 travel mm

3rd speed : 650 rpm

travel mm

: 5.80...6.40

: 900 4th speed rpm

: 6.70...7.00 travel mm

: 1350 5th speed rpm

travel mm

: 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 850 Speed

Rack travel in mm : 16.50...18.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Aneroid pressure h: 1600

Del.quantity : 303.0...306.0 1000 : (299.5...309.5) cm3: 6.00 Spreak 1000 : (10.00) RATED SPEED 1st version Control Lever position degrees: 106...114 Testina: 1st rack travel in: 10.90 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 63...71 Testina: Speed rom Minimum rack trave: 5.70 : 400 rpm Rack travel in mm : 4.10...4.30 CONSTANT REGULATION rpm : 400...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed man : 500 hPa : 1600 Pressure Rack travel mm : 11.90...12.00 Measurement 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 6.70...6.90 2nd pressure hPa : 340 Rack travel in m: 8.00...8.10 3rd pressure hPa : 1000 Rack travel in m: 10.50...10.90 FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 184.0...187.0 1000 s: (180.5...190.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 1190...1200 Speed LOW IDLE Speed rpm : 400 Rack travel in mm : 4.00...4.40 Del.quantity cm3/: 35.0...41.0 1000 s: (31.0...45.0) cm3 : 10.00 Spread 1000 s: (14.00) Remarks: start of delivery **APPLICATION** Navy

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

1st version

Aneroid pressure h: 1600

Speed rpm: 700
Del.quantity cm3/: 347.0...354.0
1000 s: (343.5...357.5)

Note remarks

: MB 22,0 c 1 : 03.06.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 640 827

Injection pump

Pump designation : PE12P120A520LS7826 EP type number : 0 412 620 817

Governor

: RQV350...1000PA870-Governor design.

12

: 0 421 813 933 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM 444 LA

: 550.0 1st version kW

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

assembly : 1 688 901 019

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55) Rack travel in mm : 19.00...21.00 Firing order : 12-1-5-9-8-3-4-11-10-2-6-7

Phasing : 0-45-60-105-120-165-

180-225-240-285-300-

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 24.2...24.4

100 s: (23.9...24.7)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 350.0 2nd speed Rack travel in mm : 5.3...5.9 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

npm : 3501st speed

1.30...1.80 travel mm

rpm : 740 2nd speed

: 4.80...5.30 travel mm

rpm : 1058 3rd speed

: 8.30...8.80 travel mm

4th speed : 1260 rpm

: 11.00...12.00 travel min

GUIDE SLEEVE POSITION Control-lever position Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 1000Speed Aneroid pressure h: 1600 : 242.0...244.0 Del.quantity 1000 : (239.0...247.0) : 6.00 cm3 Spread 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 12.00 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 62...70 Testina: Speed rpm Minimum rack trave: 7.30 rpm : 350 Rack travel in mm : 5.30...5.90 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 8.20...8.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 400 Rack travel in m: 9.40...9.60 2nd pressure hPa : 700

Rack travel in m: 11.00...11.20

FUEL DELIVERY CHARACTERISTICS

1/min: 310 (330)

1st version Aneroid pressure h: 1600 Speed rpm : 750
Del.quantity cm3/ : 233.0...238.0
1000 s: (230.0...241.0) cm3 : 10.00 Spread 1000 s: (15.0) Aneroid pressure h: -**BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 Speed rpm : 1040...1050 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0) Remarks:

Speed

START CUT-OUT

Note remarks

: MB 22,0 c 2 : 03.06.91 Test sheet Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 640 828

Injection pump

Pump designation : PE12P12OA520LS7826

: 0 412 620 817 EP type number

Governor

Governor design. : RQV350...1050PA870-

: 0 421 813 934 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

Engine : OM 444 IA

1st version kW : 620.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50 : (4.35...4.55)

Rack travel in mm : 19.00...21.00

Firing order : 12- 1- 5- 9- 8- 3-

4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 28.0...28.2

100 s: (27.7...28.5)

Spread cm3 : 0.6

100 s: (1.0)

rpm : 350.0 2nd speed Rack travel in mm : 5.3...5.9 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 350 1st speed : 1.30...1.80 travel mm

2nd speed 570

rpm

3.30...3.80 travel mm

3rd speed 900 rpm

5.40...5.90 travel mm 1107 4th speed rpm

: 7.80...8.30 : 1204 travel mm

5th speed rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed Aneroid pressure h: 1800

: 280.0...282.0 Del.quantity 1000 : (277.0...285.0)

Spread cm3 : 6.00

1000 : (10.00)

RATED SPEED

1st version Control Lever

position degrees: 114...122

Testing:

1st rack travel in: 13.30

Speed rpm : 1090...1100 2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1250

rom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 59...67

Testina:

Speed rpm Minimum rack trave: 7.30

Speed rpm : 350 Rack travel in mm : 5.30...5.90

CONSTANT REGULATION ?

rpm : 350...600 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed

. 500 וחמה Pressure hPa : -

: 8.20...8.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 300

Rack travel in m: 9.60...9.70

2nd pressure hPa : 1100

Rack travel in m: 13.80...14.10

START CUT-OUT

Speed 1/min: 310 (330) FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800 : 750 Speed rom

Del.quantity cm3/: 278.0...282.0 1000 s: (275.0...285.0)

cm3 : 10.00 Spread 1000 s: (15.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 124.0...126.0
1000 s: (121.0...129.0)

Spread cm3 : 10.00

1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.30

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0)

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Remarks:

NO4

Note remarks

Test sheet : MB 22,0 c 3 Edition : 03.06.91

Replaces

Test oil : ISO-4113

Combination no. : 0 402 640 829

Injection pump

Pump designation : PE12P120A520LS7826

: 0 412 620 817 EP type number

Governor

Governor design. : RQV350...900PA870-14

: 0 421 813 935 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: OM 444 LA Engine

: 500.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 150...170

Test nozzle holder

: 1 688 901 019 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.40...4.50 Prestroke mm

: (4.35...4.55)

Rack travel in mm : 19.00...21.00 : 12- 1- 5- 9- 8- 3-Firing order

4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-180-225-240-285-300-Phasing

345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 23.6...23.8

100 s: (23.3...24.1)

cm3 : 0.6Spread

100 s: (1.0)

rpm : 350.02nd speed Rack travel in mm: 5.3...5.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350

: 1.30...1.80 travel mm

: 655 2nd speed rpm

: 4.80...5.30 travel mm 960

3rd speed rpm

8.70...9.20 travel mm

4th speed : 1120 rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1025 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 900 Speed Ameroid pressure h: 1600 : 236.0...238.0 Del.quantity 1000 : (233.0...241.0) : 6.00 Spread cm3 1000 : (10.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testina: 1st rack travel in: 11.90 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 1010...1040 Speed 4th rack travel in: 1350 Speed : 0.00...1.00 rrom LOW IDLE 1 Control Lever position degrees: 62...70 Testing: Speed mon Minimum rack trave: 7.30 Speed rpm Rack travel in mm : 5.30...5.90 CONSTANT REGULATION rpm : 350...600 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 8.20...8.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 400 Rack travel in m: 9.40...9.60

2nd pressure hPa : 700 Rack travel in m: 11.00...11.20 START CUT-OUT 1/min: 310 (330) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1600 : 750 Speed rom Del.quantity cm3/: 228.0...232.0 1000 s: (225.0...235.0) Spread cm3 : 10.001000 s: (15.0) Aneroid pressure h: Speed : 500 rpm Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0) Spread cm3 : 10.00 1000 s: (15.0) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 11.90 rpm : 940...950 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 330.0...350.0 1000 s: (326.0...354.0)

Remarks:

Note remarks

Test sheet : MAN 21,0 b3 Edition : 27.05.91

Replaces

Test oil : ISO-4113

: 0 402 640 830 Combination no.

Injection pump

Pump designation: PE12P120A520LS7824-2

: 0 412 620 816 EP type number

Governor

Governor design. : RQV300...1150PA902-4

: 0 421 813 870 Governer no.

Customer-spec. information : MAN Customer

Engine : D2842LYE

: 735.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.50...4.60 : (4.45...4.65) Prestroke mm

Rack travel in mm : 9.00...12.00 : 12- 1- 5- 9- 8- 3-Firing order

4- 11- 10- 2- 6- 7

: 0-45-60-105-120-165-Phasing

180-225-240-285-300-

345 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 12

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 30.1...30.3

100 s: (29.8...30.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 500 2nd speed

Rack travel in mm: 9.1...9.3 Del.quantity cm3/: 14.9...15.1

100 s: (14.6...15.4)

Spread cm3 : 0.8

100 s: (1.2)

3rd speed rpm : 300 Rack travel in mm : 7.20...7.40

Del.quantity cm3/ : 5.2...6.0 *

100 s: (-) cm3 : -

Spread 100 s: (-)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rom :

1.20...1.60 travel mm

2nd speed rpm : 450

: 2.90...3.50 rpm : 750 travel mm

3rd speed

: 5.60...6.00 : 1150 travel mm

4th speed rpm

: 9.50...9.70 travel mm

: 1400 5th speed rpm

travel mm : 13.00...14.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200 Rack travel in mm : 15.20...17.80 1/min: 220 (240) Speed FULL LOAD DELIV. AT FULL LOAD STOP FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1150 1st version Aneroid pressure h: 1300 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 149.0...151.0 1000 s: (146.0...154.0) : 301.0...303.0 Del.quantity 1000 : (298.0...306.0) : 5.00 Spread cm3 1000 : (9.00) cm3 : 8.00Spread 1000 s: (12.0) RATED SPEED 1st version BREAKAWAY Control lever 1st version position degrees: 118...126 1mm rack travel less than Testing: 1st rack travel in: 12.60 full load rack tr: 12.60 rpm : 1190...1200 Speed rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1290...1320 Speed STARTING FUEL DELIVERY 4th rack travel in: 1400 Speed rom : 0.00...1.00 Speed rpm Del.quantity cm3/: 100.0...120.0 * 1000 s: (-) LOW IDLE 1 Control lever position degrees: 79...87 Speed rpm : 100 Del.quantity cm3/: - ** 1000 s: (-) Testing: rpm : 100 Speed Rack travel in mm : 17.5...21.0 Minimum rack trave: 8.90 Speed rpm : 300
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00 HIGH IDLE : 470...530 Speed rom 1st version Aneroid pressure h: rpm : 500 Aneroid/Altitude Compensator Test Rack travel in mm: <7.00 Del.quantity cm3/: - ** 1000 s: (-) 1st version Setting 2nd version : 500 Speed Aneroid pressure h: rpm hPa : 1300 rpm : 500 Pressure Rack travel mm : 13.60...13.70 Rack travel in mm: < 7.50 Del.quantity cm3/: < 50.0 1000 s: (-) Measurement 1/min: 500 Speed 3rd version 1st pressure hPa : -Aneroid pressure h: -Speed rpm : 500 Rack travel in mm : 8.40...8.60 Rack travel in n.: 9.10...9.30 2nd pressure hPa : 100 Del.quantity cm3/: 125.0...200.0 1000 s: (-) Rack travel in m: 9.50...9.60 3rd pressure hPa : 470 Rack travel in m: 12.40...12.80 LOW IDLE

NCB

START CUT-OUT

Speed rpm : 300 Rack travel in mm : 7.20...7.40 Del.quantity cm3/ : 52.0...60.0 * 1000 s: (-)

Remarks:

: MAN-NR. 2-7960

* applies to cylinders 4, 5, 6, 8 ,10 and 12

** applies for cylinders 1, 2, 3, 7, 9 and 11

APPLICATION

Ship

Note remarks

Test sheet : MB 11,0 t : 27.05.91 Edition Replaces : 26.4.91 Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design: RQ300/1050PA762-4

: 0 421 801 390 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M441 LA Engine

1st version kW : 240.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 13.90...14.10

Del.quantity cm3/: 21.4...21.6

100 s: (21.1...21.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2) cm3 : 0.6

Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 900

Del.quantity : 214.0...216.0 1000 : (211.0...219.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

: 600 Speed rpm Rack travel in mm : 20.0

Testing: 1st rack travel in: 13.80 Speed rpm : 1095...1110 2nd rack travel in: 4.00 Speed rpm : 1155...1185 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring : 300 rpm Speed Rack travel in mm: 5.9 Testing: Speed rom Minimum rack trave: 7.90 Speed rpm : 300
Rack travel in mm : 5.60...6.20
Rack travel in mm : 2.00
Speed rpm : 380...420 TORQUE CONTROL Dimension a mm : 0.30 rpm : 1050 2nd speed Rack travel in m: 14.80...15.00 rpm : 800 3rd speed Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rom hPa : 900 Pressure : 13.90...14.10 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 12.90...13.10 3rd pressure hPa : 1050 Rack travel in m: 14.00...14.10 * 4th pressure hPa : 1150 Rack travel in m: 14.40...14.60 5th pressure hPa : -Rack travel in m: 9.50...9.80 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1450 Speed rpm : 1050 Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) Suread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1450 Speed rpm : 800 Del.quantity cm3/ : 237.0...241.0 1000 s: (234.0...244.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) cm3 : 8.00 Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

Test sheet : MB 11,0 t 2 Edition : 27.05.91 Replaces : 26.4.91 Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump

Pump designation : PE6P120A320LS7808 EP type number : 0 412 626 816

Governor

Governor design. : RQV300...1050PA797-2

: 0 421 813 614 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M441 LA

: 240.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.90...14.10

Del.quantity cm3/ : 21.4...21.6

100 s: (21.1...21.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.6...6.2 Del.quantity cm3/: 1.3...1.9

100 s: (1.0...2.2)

Spread cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL rpm : 300 1st speed

travel mm : 1.20...1.40

2nd speed rpm : 600

: 4.90...5.10 travel mm

rom : 1075 3rd speed

: 7.40...7.60 travel mm

: 1100 4th speed rpm

: 8.00...8.40 travel mm

rpm : 1150 5th speed

: 9.00...9.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1125 Speed

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 600 Speed Aneroid pressure h: 900 : 214.0...216.0 Del.quantity 1000 : (211.0...219.0) : 5.00 cm3 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 121...129 Testing: 1st rack travel in: 13.80 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 81...89 Testing: Speed rpm : 200 Minimum rack trave: 7.90 Speed rpm : 300 Rack travel in mm : 5.60...6.20 CONSTANT REGULATION Speed rpm : 300...450 TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 1050 Rack travel in m: 14.80...15.00 rpm : 800 3rd speed Rack travel in m: 15.00...15.20 : 700 4th speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man hPa : 900 Pressure : 13.90...14.10 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 13.70...13.90 2nd pressure hPa : 550 Rack travel in m: 12.90...13.10

4th pressure hPa : 1150 Rack travel in m: 14.40...14.60 5th pressure hPa : -Rack travel in m: 9.50...9.80 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1450 : 1050 Speed nom: Del.quantity cm3/: 231.0...234.0 1000 s: (228.0...237.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1450 : 800 Speed rpm Del.quantity cm3/: 237.0...241.0 1000 s: (234.0...244.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 142.0...144.0 1000 s: (139.0...147.0) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 1095...1110 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 200.0...220.0 1000 s: (196.0...224.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm

3rd pressure hPa : 1050
 Rack travel in m: 14.00...14.10 *

Note remarks

: SCA 11.1 m : 27.05.91 Test sheet Edition Replaces : 16.11.90 Test oil : ISO-4113

Combination no. : 0 402 646 872

Injection pump

Pump designation : PE62120A720RS7126Z

EP type number : 0 412 626 830

Governor

Governor design. : RQV200...1000PA725-6

: 0 421 813 755 Governer no.

Customer-spec. information Customer : SAAB-SCANIA

Engine : DSC11 08

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.5C (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 20.4...20.6

100 s: (20.1...20.9)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 225.0 2nd speed Rack travel in mm: 4.7...5.1

Del.quantity cm3/: 1.8...2.2 100 s: (-)

Spread cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

travel mm : 1.20...1.60

2nd speed : 350 **CDM**

: 2.40...3.00 travel mm

3rd speed : 650 rpm

travel mm 4.40...5.00

: 1045 4th speed rpm

: 8.40...8.60 travel mm

: 1150 5th speed man

: 9.70...10.10 travel mm

GUIDE SLEEVE POSITION

Control-lever position

rpm : 1170

Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

Degree: -1

1st version

Speed rpm : 700 Aneroid pressure h: 900

Del.quantity : 204.0...209.0)

N14

cm3 : 6.00 1000 : (9.00) Spread

RATED SPEED

1st version Control lever

position degrees: 113...121

Testina:

1st rack travel in: 11.80 Speed rpm : 1040...1050 2nd rack travel in: 4.00

Speed rpm : 1140...1170 4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 61...69

Testing:

Speed rpm Minimum rack trave: 6.30 Speed rpm : 225

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00 : 350...410 Speed rpm

Aneroid/Altitude Compensator Test

1st version Settina

Speed rpm

hPa : 900 Pressure Rack travel mm : 12.80...12.90

Measurement

1/min: 500 Speed

1st pressure hPa : Rack travel in m: 10.30...10.70

2nd pressure hPa : 470 Rack travel in m: 12.40...12.50

3rd pressure hPa : 320 Rack travel in m: 11.40...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed : 1000 rpm

Del.quantity cm3/: 197.0...205.0 1000 s: (195.0...207.0)

Aneroid pressure h: -Speed : 500 rpm

Del.quantity cm3/: 142.0...146.0

1000 s: (140.0...148.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...155.0

1000 s: (-)

Rack travel in mm : 10.30...10.70

LCW IDLE

rpm : 225

Rack travel in mm : 4.70...4.90

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO diaphragm.

For comb. with letter index see VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania on November 14, 1989

Start of delivery - engine: 9° before

Firing sequence of engine: 1-5-3-6-2-4.

Note remarks

Test sheet : SCA 11.1 r : 27.05.91 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 887

Injection pump

Pump designation : PE6P120A720RS7188

EP type number : 0 412 626 832

Governor

Governor design. : RQV2CO...950PA725-7

: 0 421 813 803 Governer no.

Customer-spec. information : SCANIA Customer

: DSC 11 23 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 104

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,7

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 25.1...25.3

100 s: (24.8...25.6)

cm3 : 0.7Spread

100 s: (1.0)

rpm : 225.0 2nd speed

Rack travel in mm: 4.6,..5.0

Del.quantity cm3/: 1.5...1.9

100 s: (-)

cm3 : 0.5 Spread

100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 225 1st speed

: 1.20...1.60 travel mm

rpm : 350 2nd speed

: 2.40...3.00 travel mm

3rd speed rpm : 650

: 4.50...5.10 travel mm

rpm : 1045 4th speed

travel mm : 8.40...8.60

: 1125 5th speed rpm

travel mm : 9.30...9.70

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1150

Rack travel in mm : 7.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1500

Del.quantity : 231.0...256.0)

N16

cm3 : 7.00 Spread 1000 : (10.00)

RATED SPEED

1st version Control lever

position degrees: 110...118

Testing:

1st rack travel in: 12.80 rpm : 990...1000 Speed 2nd rack travel in: 4.00

speed rpm : 1110...1140 4th rack travel in: 1250 Speed rpm

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

Speed : 100 rom Minimum rack trave: 6.20 Speed : 225 rpm

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00 : 350...410 Speed rom

Aneroid/Altitude Compensator Test

1st version Setting

rpm : 500 hPa : 1500 Speed rom Pressure

: 13.80...13.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.20...10.60

2nd pressure hPa : 440

Rack travel in m: 12.00...12.10

3rd pressure hPa : 270

Rack travel in m: 10.90...11.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500

Speed rpm : 950
Del.quantity cm3/: 232.0...240.0
1000 s: (230.0...242.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 151.0...155.0 1000 s: (149.0...157.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 990...1000 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...180.0 1000 s: (-)

Rack travel in mm : 10.20...10.60

LOW IDLE

Speed rpm : 225 Rack travel in mm : 4.60...4.80

Remarks:

Delivery—valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders

to 2.9...3.1 mm.

Start-of-delivery setting with ROBO

diaphragm.

APPLICATION

Navy

Note remarks

Test sheet Edition : MB 9,6 q : 03.06.91 : 3.5.91 Replaces : ISO-4113 Test oil

: 0 402 646 915 Combination no.

Injection pump

Pump designation : PE6P120A320L57836 EP type number : 0 412 626 840

Governor

Governor design: RQ300/1050PA972 : 0 421 801 542 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA Engine

1st version kW : 200.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60 : (5.45...5.65) Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 18.2...18.4

100 s: (17.9...18.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.5...5.8
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.5)
Spread cm3 : 0.6
100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 800

: 182.0...184.0 Del.quantity

1000 : (179.0...187.0) cm3 : 5.00 1000 : (9.00)

RATED SPEED

Spread

1st version

Setting point: rpm Rack travel in mm: 20.0

M18

Testina: 1st rack travel in: 12.10 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 Speed rpm : 1165...1195 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm : 5.6 Testing: Speed **Libu** Minimum rack trave: 7.50 rpm : 300 Speed Rack travel in mm : 5.50...5.80 Rack travel in mm : 2.00 : 380...420 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 800 : 12.40...12.60 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 350 Rack travel in m: 10.20...10.40 2nd pressure hPa : 500 Rack travel in m: 11.60...11.80 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 4th pressure hPa : 1150 Rack travel in m: 12.90...13.10 5th pressure hPa : -Rack travel in m: 9.50...9.80 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 1050 Speed Del.quantity cm3/: 201.0...204.0 1000 s: (198.0...207.0) cm3 : 8.00Soread 1000 s: (12.0) Aneroid pressure h: 1400 Speed rpm : 800

Del.quantity cm3/: 202.0...206.0 1000 s: (199.0...209.0)

cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: -1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 1090...1105

Remarks:

Speed

N19

Note remarks

: MB 9,6 o 2 : 27.05.91 : 22.3.91 Test sheet Edition Replaces Test oil : ISO-4113

: 0 402 646 922 Combination no.

Injection pump

Pump designation : PE6P12DA32DLS7834 EP type number : 0 412 626 841

Governor

Governor design. : RQ300/1050PA972-2 Governer no. : 0 421 801 556

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M401 LA

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 : 6-3-5-2-4-1

Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 13.70...13.90

Del.quantity cm3/: 21.9...21.1

100 s: (21.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 6.4...7.0 Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed Aneroid pressure h: 800

: 219.0...211.0 Del.quantity

1000 : (216.0...214.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

N20

Testina:

1st rack travel in: 13.10

rpm : 1090...1105 Speed

2nd rack travel in: 4.00

: 1175...1205 Speed rpm

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

rpm Rack travel in mm: 6.7

Testing:

rpm Speed : 200

Minimum rack trave: 8.50

: 300 Speed rpm

Rack travel in mm : 6.40...7.00

Rack travel in mm: 2.00

Speed rom : 380...420

TORQUE CONTROL Dimension a mm

: 1050 2nd speed rpm

Rack travel in m: 14.10...14.30

: 800 3rd speed rom

Rack travel in m: 14.30...14.50

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 COU hPa : 800 Pressure

: 13.70...13.90 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 250 Rack travel in m: 9.90...10.10

2nd pressure hPa : 550

Rack travel in m: 12.50...12.70

3rd pressure hPa : 1100

Rack travel in m: 13.80...14.00 *

4th pressure hPa : 1250

Rack travel in m: 14.10...14.30

5th pressure hPa : -

Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 Speed rpm : 1050 Del.quantity cm3/: 216.0...219.0

1000 s: (213.0...222.0)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: 1500 Speed : 800 rpm

Del.quantity cm3/: 219.0...223.0

1000 s: (216.0...226.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm

Del.quantity cm3/: 122.0...124.0 1000 s: (119.0...127.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

rpm : 1090...1105 Speed

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Note remarks

: UNI 13, 8 h : 27.05.91 Test sheet Edition : 22.3.91 Replaces

: ISO-4113 Test oil

Combination no. : 0 402 646 923

Injection pump

Pump designation : PE6P130A720RS7225 EP type number : 0 412 636 817

Governor

Governor design. : RQV300...900PA946

: 0 421 813 845 Governer no.

Customer spec. information Customer : IVECO-UNIC

: 8210.42.061 Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm : (4.95...5.15)

Rack travel in mm : 11.50...12.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 27.0...27.3

100 s: (26.6...27.6)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 300.0 Rack travel in mm : 3.4...3.8 Del.quantity cm3/: 1.9...2.5

100 s: (1.5...2.9)

cm3 : 1.0Spread

100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 945

: 8.40...8.60 travel mm rpm : 300 2nd speed

travel mm : 1.00...1.40

3rd speed rpm : 500 : 3.30...3.90 travel mm

4th speed rpm : 700

travel mm : 5.50...5.90

rpm : 1200 5th speed

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900 Aneroid pressure h: 900

Del.quantity : 270.0...276.5)

N22

cm3 : 6.00 1000 : (10.00) Spread

RATED SPEED

1st version Control lever

position degrees: 72...80

Testina:

1st rack travel in: 10.60 rpm : 940...950 Speed 2nd rack travel in: 4.00

Speed rpm : 1010...1040 4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 76...84

Testing:

Speed rpm Minimum rack trave: 5.10 Speed rpm : 300 Rack travel in mm : 3.50...3.70

CONSTANT REGULATION

rpm : 320...440 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 900 Rack travel mm : 11.60...11.70

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.90...9.10

2nd pressure hPa : 350
Rack travel in m: 11.00...11.10
3rd pressure hPa : 285

Rack travel in m: 9.50...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 500 Speed rpm

Del.quantity cm3/: 285.0...292.0 1000 s: (281.5...295.5)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 202.0...205.0 1000 s: (198.5...208.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.60 rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...155.0

1000 s: (121.0...159.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.40...3.80
Del.quantity cm3/: 19.0...25.0
1000 s: (15.0...29.0)
Spread cm3 : 10.00

1000 s: (14.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MB 9,6 p : 27.05.91 Test sheet Edition : 24.4.91 Replaces Test oil : ISO-4113

Combination no. : 0 402 646 924

Injection pump

Pump designation: PE6P12OA32OLS7837 EP type number : 0 412 626 842

Governor

Governor design. : RQ300/950PA971-3 : 0 421 801 557 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA Engine

1st version kW : 250.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

-360

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.70...14.90

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.0 2nd speed Rack travel in mm : 5.6...6.2 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1000

: 233.0...235.0 Del.quantity 1000 : (230.0...238.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rom Rack travel in mm: 20.0

Testing: 1st rack travel in: 14.50 rpm : 990...1005 Speed 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 Testing: Speed rpm Minimum rack trave: 7.90 : 300 Speed rpm Rack travel in mm : 5.60...6.20 Rack travel in mm : 2.00 Speed : 380...420 rom TORQUE CONTROL Dimension a mm : 0.40 nd speed rpm : 950 Rack travel in m: 15.50...15.70 2nd speed 3rd speed rpm : 800 Rack travel in m: 15.60...15.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 1000 : 14.70...14.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1250 Rack travel in m: 14.80...15.00 * 4th pressure hPa : 1450 Rack travel in m: 15.40...15.60 5th pressure hPa : -Rack travel in m: 9.30...9.50 FUEL DELIVERY CHARACTERISTICS

Del.quantity cm3/: 251.0...254.0 1000 s: (248.0...257.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rpm Del.quantity cm3/: 250.0...254.0 1000 s: (247.0...257.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 135.0...137.0
1000 s: (132.0...140.0) : 8.00 Spread cm3 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.50 Speed rpm : 990...1005

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

Speed

1st version

Aneroid pressure h: 1800

man

: 950

Note remarks

Test sheet : MB 11,1 b 1 : 03.06.91 Edition : 24.4.91 Replaces : ISO-4113 Test oil

Combination no. : 0 402 646 931

Injection pump

Pump designation : PE6P120A320LS7837 EP type number : 0 412 626 842

Governor

: RQV300...1050PA797-Governor design.

: 0 421 813 911 Governer no.

Customer—spec. information

Customer : MERCEDES-BENZ

: 0M441 LA Engine

: 250.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

: 8.00x2.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6-3-5-2-4-1

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 14.70...14.90

Del.guantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 300.0Rack travel in mm : 6.3...6.9 Del.quantity cm3/ : 1.6...2.2 100 s: (1.3...2.5)

Spread cm3 : 0.6100 s: (1.0)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 3001st speed

1.00...1.50 travel mm

2nd speed : 608 rpm

: 4.80...5.30 travel mm

3rd speed : 820 rpm

: 5.90...6.40 travel mm

: 1108 4th speed rpm

: 8.30...8.80 travel mm

: 1280 5th speed rpm

: 11.00...12.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 600
Aneroid pressure h: 1000
Del.quantity : 234.0...236.0
1000 : (231.0...239.0)
Spread cm3 : 5.00
1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.90 rpm : 1090...1105 Speed 2nd rack travel in: 4.00 rpm : 1165...1195 Speed 4th rack travel in: 1300 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 81...89 Testing: Speed rpm : 200 Minimum rack trave: 7.70 : 300 Speed nom Rack travel in mm : 6.30...6.90 CONSTANT REGULATION rpm : 300...550 Speed TORQUE CONTROL Dimension a mm : 1.00 2nd speed rpm : 1050 Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.50...15.70 Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 1000 : 14.70...14.90 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 200 Rack travel in m: 10.00...10.20 2nd pressure hPa : 600 Rack travel in m: 13.70...13.90

3rd pressure hPa : 1250 Rack travel in m: 14.80...15.00 * 4th pressure hPa : 1400 Rack travel in m: 15.30...15.50 5th pressure hPa : -Rack travel in m: 9.30...9.50 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1800 Speed : 1050 rpm Del.quantity cm3/: 235.0...238.0 1000 s: (232.0...241.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1800 : 800 Speed rpm Del.quantity cm3/: 248.0...252.0 1000 s: (245.0...255.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 135.0...137.0 1000 s: (132.0...140.0) Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 1090...1105 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks: * Increase in control-rod travel with respect to setting at least 0.1 mm